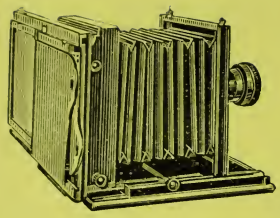
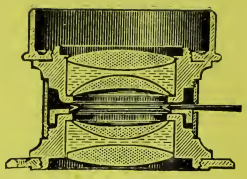
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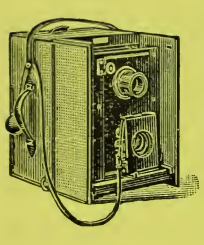


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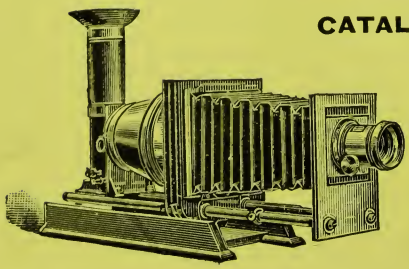
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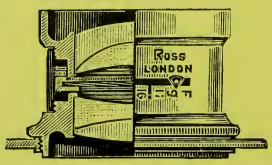
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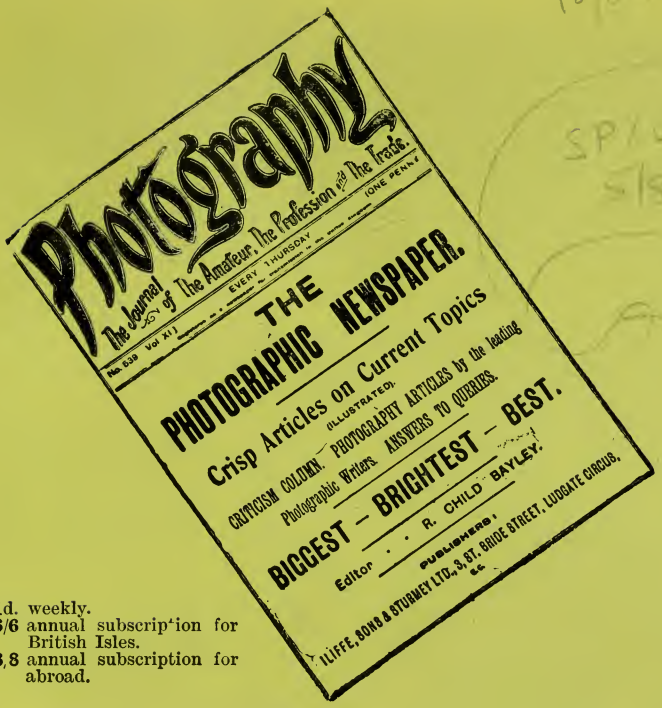
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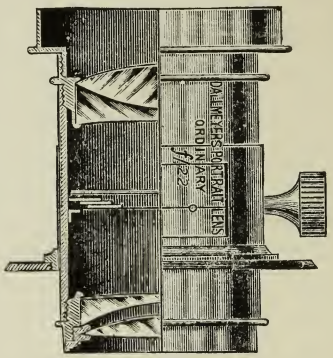
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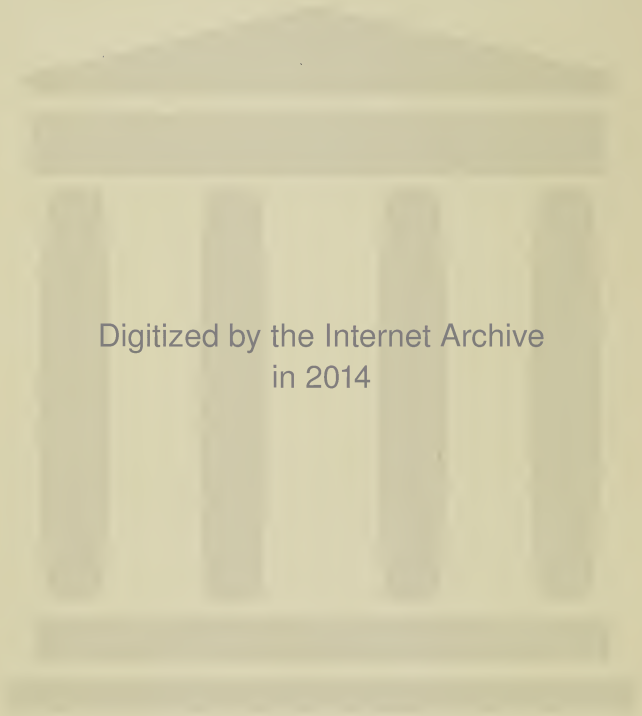
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By RICHARD PENLAKE

(Percy R. Salmon, F.R.P.S.)

(Author of "Developers: their Use and Abuse";
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WHEN, amid Life's surging battle,
 Reverie its solace lends,
Sweet it is to scan the faces—
 Picture faces—of old friends:
Friends and loves of days departed
 That have vanished with the days,
Riven from our sides and scattered
 O'er earth's widely devious ways.

Some have passed the mystic portals
 Where the usher Death presides;
Some to distant climes have wandered,
 Borne on Time's relentless tides;
Some, perchance, to paths unholy;
 Some to deeds without a name:
But the faces in the album
 Are for aye and aye the same.

Changeless still amid life's changes,
 They renew its brighter hours.
Ere our hearts had known its sorrows,
 When our paths were strewn with flowers.
Picture faces! O, what volumes
 Of unwritten life ye hold:
Youthful faces! pure, sweet faces!
 Dearly prized as we grow old.

M C. DUNCAN.

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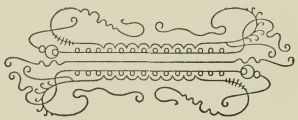
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PREFACE.

THE following chapters are intended as supplementary instructions in the art of photography for those who have learned its first principles.

Most attention has been paid to the chief elements of success in home portraiture, which are Posing and Lighting, and less to the after manipulations of Printing, etc. I do not think it necessary to describe in detail the many printing processes, but prefer to refer the reader to special treatises, if more than the manufacturer's instructions are required. I feel that such a course is the best one, because, during my connection with a journal devoted to the interests of amateur photographers, I had almost unequalled facilities for inspecting amateurs' first attempts at portraiture, and, in the majority of cases, printing, toning, etc., were really excellent, while posing and lighting had been woefully neglected.

The following methods are the result of ten years' incessant work in the production of portraits "at home," and I wish it to be well understood that I am not a professional portrait photographer, neither have I a proper studio, so that I am at no time led away to methods not applicable to amateur workers. I do not claim to put forth anything

that is new, for many ideas that occurred to me in practical work I have since found in various magazines, or have been told of them by other workers.

A few extracts I have made from other works, and these are, where possible, acknowledged. I prefer this method of working rather than re-writing other men's ideas and taking the credit myself.

In conclusion, I have specially to thank the following gentlemen for so kindly aiding my efforts in bringing this treatise to a successful issue by the loan of blocks, etc:— Mr. William Tylar (Birmingham), Mr. Harold Baker (Birmingham), Mr. Palmer Clarke (Cambridge), M. Rhomaides (Athens), and the editors of the *Photogram*.

RICHARD PENLAKE.

SWAVESEY,
CAMBS.

HOME PORTRAITURE.

CHAPTER I.

GENERAL PRINCIPLES.

FOR some reason or other, the old advice usually given to beginners, *i.e.*, to become thoroughly proficient in the art of landscape photography before attempting the more difficult branch of portraiture, seems never to be regarded with any seriousness.

The golden rule, undoubtedly, is to begin with still life, and work round to the human form by way of animal life. Buildings, etc., cannot move during exposure, but animals can, hence we get a taste of what human beings are like, without any grumbling on the part of the animals. After still life and animals have been mastered, one is naturally anxious to pursue his studies still further, and the road leading to portraiture looks (and is from the outset) the most tempting. Not only this, but I know full well how the tyro is worried by his friends and relatives; how anxious they are to sit for him and to see the results, but oh! what awful things are said when his back is turned. Some, perhaps, have the courage to grumble before his face, whilst others, maybe, encourage him onwards.

Whichever way it be, the final result is generally about the same, and, in spite of his patient efforts, those life-like portraits that he has so long pictured to himself do not make their appearance.

If the attempt has been made out of doors, he looks in vain for the well-modelled features, for in their stead appear dull, flatly lighted faces, utterly devoid of expression, life, or character. If, on the other hand, the attempt has been made indoors, a new kind of failure appears, *i.e.*, a negative giving harsh contrasts is the result, the high lights are too intense, the shadows are too clear, neither is there any half tone.

Pessimistic workers often, after a few failures, content themselves with the thought that, because they have not a proper studio, accessories, etc., good results are not possible. "It is ridiculous to suggest such a thing," they say, and so they go on just in the old sweet way in the backyard, with a brick wall, coal cellar door, or a table-cloth, with a fancy pattern woven in it, as a background. With such accessories they do not expect great things, and they are not disappointed. Their productions are branded from top to toe with "amateur," and one can, perhaps, scarcely tell whether the picture (?) be of a corpse or a living soul, or where the face ends and the background begins, while the lighting is—vile. The remedy for these defects is obvious.

Outdoor Work.—In the case of outdoor work the light must be controlled in some way or other, in order that it may not play upon the sitter from every direction, and so produce a flat result. In the following chapters I give a

few methods by which this may be successfully accomplished, and I see no reason why the painstaking amateur may not, with but very little trouble and expense, and with a little knowledge of light and shade, both in pictures and on the face of the sitter in different positions, produce very passable results both out of doors, and, in the case of indoor work, in an ordinary room.

Indoor Work.—In the case of interior work, the light coming very strongly from one single point, and with practically no diffusion, is the chief cause of failure. The question of indoor lighting is to many a big stumbling block. How to obtain suitable lighting, so that there shall be a proper rendering of half tone between that part of the face next the light and that of the shadow side, is the question I have attempted to solve. Bright light and shadow, of course, work the same indoors as out. Why should they not? Suppose, for example, we took a landscape in bright sunlight when the sun was at a certain angle, and giving pure high lights and shadows, the result, especially if a very quick exposure be given, would be one of great contrast with lack of detail in the shadows. But suppose, again, we took the very same view when the light was diffused, *i.e.*, the sun covered by a cloud, the result would be much softer, with harmonious gradations of light and shade as well as detail. It would also be seen that what really appeared to be black in the first negative was only black when contrasted with the strongly lighted high lights.

A strong light coming from a single window is very often the only one available for indoor portraits, and I have

endeavoured to prove that such a light in its "raw" state is unsuitable. I am well aware of the fact that it is light that makes the picture, but it requires modification, for like fire, light is to photographers a very good servant but a bad master. Giving expression the first place, lighting and shaping the face by means of skilful handling of the light is the most important detail in the art of successful portraiture. It is not enough to set the sitter carelessly before the camera and fire away, thinking that any result must of necessity be a likeness and therefore good enough. One must, to a certain extent, be a student of human nature, besides possessing a large amount of patience.

The Sitter.—Now a few words about our sitters. Many beginners often ask where celebrated photographers get their models from, but it should be remembered a pretty face is not absolutely necessary for the production of a good photograph, although undoubtedly it goes a long way towards a "pretty" result. A head may look well posed in front of the camera, its inverted image upon the ground glass may also promise a good result, and yet somehow in the end we are much disappointed. Some photographers, even when they get a pretty face to work upon, cannot depend upon a good result; this incapacity is, no doubt, greatly owing to the fact that although a face in real life may look pleasing, it is in the majority of cases owing to its colour, which, as we all know, will not photograph. Suppose one is fortunate enough to have a pretty model with, say, a delicate pink and white complexion (whether real or artificial matters not, it is there and has to be photographed), light blue eyes and yellowish hair. Can

the camera do her justice? No. Why not? Because the eyes will photograph nearly—if not quite—white, especially if placed in a strong light, while the complexion and hair will be darker than they appear in nature. Such a face would produce the best result posed back to the light, so that the face is kept somewhat in shadow, and a very dark background should be used. If the profile be good a better result perhaps could be got by Rembrandt lighting.

Those faces are best suited to the camera that have no colour in them, such as the Eastern-or-gipsy-type, with black hair, dark eyes, and a rather sallow complexion; in such faces there is no colour to attract our attention and lead us astray, all is by Dame Nature herself produced for us in monochrome.

"Why is it actresses always look so sweet and lovely in their pictures while the rest of us usually look such frights?" said a not very attractive young woman to me one day whilst I was trying to photograph her A little reflection will, I think, give one the key of the mystery. Actresses look pretty simply because they make it their business to do so, and set about the thing in a scientific way, just as another woman learns typewriting. They make pretty pictures because they study the art of posing before the camera, as well as on the stage. Nine-tenths of the difficulty is overcome when the person who sits for a photograph understands the art of posing.

Again it must be remembered, photographs of actresses *are* photographs and nothing more, *i.e.*, they are not likenesses in any sense of the word. They are taken as a general rule for strictly commercial purposes, and as long as the picture

is pretty, it matters not to what extent the negative or print has been retouched, or otherwise "faked" up. Scarcely one person in ten would be able to recognise stage artists in the street, even though their "shop window" pictures be engraved, as it were, on their mind. Amateurs surely do not wish to reach such a degree of perfection (*sic*) as to turn out photographs of their friends like so many wax figures. There is, fortunately, a happy medium between the latter and bad portraiture which all should strive to reach.

Portraits of Celebrities.—Speaking of wax figures reminds me of the following question I once had put to me: "How is it that portraits of royalty and other celebrities are so very clear and so very good?" The answer may interest others. In the first place, the best photographers only are sent to do the work, and many negatives are frequently taken, of which perhaps only one is used. Even that negative, I venture to say, has sometimes been so considerably worked up that scarcely a single part of the original negative prints at all. In the second place, celebrities are frequently photographed from wax models.

Dress.—The question of dress, especially to females, is a most important one. "How will my dress come out?" and "What colour of dress shall I come in?" are questions frequently put to beginners, and I give below some particulars that will be found of inestimable value to both operators and sitters:—

White, light green, light blue or violet photograph *white*. The first colour combines best with black, dark blue,

red or brown; the next goes best with dark green, dark red, brown, or black; whilst the light blue and violet combine best with dark blue, dark red, brown or black.

The colours that photograph *grey* are grey, yellow, salmon, pink and fawn. Grey goes best with white or black, whilst the others go best with black or dark green.

Scarlet photographs a very *dark grey*, and combines well with white or dark blue.

The colours that "come out" *black* are dark red, brown, dark green, dark blue, mauve and black.

Dark red and brown combine best with white, light green, light blue or grey. Dark green is best with light green, yellow or grey; whilst dark blue and mauve go best with light blue, white or grey.

The above deals only with colour; as for materials most suited for a photograph the following are arranged in the order of preference:—Velvet, silk, cloth, serge, calico goods, woollen goods, fur. Velvet goes best with crape, fur, linen and lace. Silk with fur, velvet and crape. Cloth, with fur, lace, crape and linen. Serge, with silk and linen. Calico, with linen and cloth. Woollen goods, with silk and linen. Fur, with lace, silk and fringes.

CHAPTER II.

APPARATUS AND ACCESSORIES.

The Camera.—A studio camera and portrait lens are not absolutely necessary for the production of a portrait. Ordinary cameras and lenses will do the work, so none must get the idea that because they do not possess a studio camera, stand, and portrait lens, it is impossible to turn out a respectable portrait.

Although, as I say, any camera will serve, yet I consider the square pattern the most suitable. The Kinnear, or tapering form, is certainly the lightest pattern, but there its advantages cease, for conical bellows are a never ceasing source of trouble through their liability to cut off portions of the plate. In portraiture, however, this defect is not so liable to occur as in other branches of work. The camera front should be firm and steady, especially when racked out to its fullest extent. In cameras of the square form, focussing is done from the rear, thus the front is perfectly rigid, which is a great point in their favour, as also is the possibility of fitting extra large lenses to the same. A swing back, too, is also an acquisition, especially when photographing three-quarter length seated figures.

The Stand.—The tripod should be firm and rather high; it is useless to have a steady camera if the tripod shakes. As an additional assurance for rigidity I would recommend an extra large tripod top, say, a whole plate tripod top on a half-plate tripod.

The Lens.—As its name implies, a portrait lens is intended specially for portrait work, and is designed with a view to render the exposure as short as possible. It works with a very large aperture *f*4 or *f*6, whereas an ordinary rectilinear lens works at *f*8. *F*4 is four times the speed of *f*8, but even though such a large aperture be available it is rarely, if ever, used, as by inserting smaller stops better definition is obtained. Suppose a portrait lens be stopped down to *f*8, that stop brings it to the exact speed of any other lens at *f*8, as *f*8 with one lens is *f*8 with another, no matter what may be the name of it, so where does the advantage of an expensive portrait lens come in, in such a case? A great deal of misunderstanding exists on this particular point; many imagine that if they possess a lens on which is engraved the magic word "portrait," they can take portraits more quickly and better than some other individual who has another type of lens; such, however, I venture to assert, is *not* the case, providing, of course, stops of equal focal value are used.

A little extra money is sometimes paid for a lens of the "Euryscope" pattern because it works at *f*6; but even this lens, if good covering power is required, has to be stopped down smaller than *f*6, and then its superiority over the rapid rectilinear at once vanishes. I nearly always use a French rapid rectilinear lens, that I bought new from a

Leeds dealer for twenty-five shillings, and a more useful lens I do not wish for.

A real portrait lens has another use, *i.e.*, it makes an excellent objective or front lens for a magic lantern. In the same way a lantern objective can be used for portraiture. Many years ago I bought an "Optimus" magic lantern for which I gave thirty shillings, and the front lens therefrom I have used most successfully for taking small heads. I say small, because the covering power of such a lens is not large. No stops are supplied with the lens, but I cut a few of various sizes from a black cabinet mount. The lens is of 6in. focus, and a stop of one inch in diameter would be *f*6. I fitted the same to a half-plate camera, but only used quarter-plates in carriers. A still larger stop may be used, but although exposure is quickened considerable definition is lost.

For general all-round portrait work there is nothing more useful than a rapid rectilinear lens, the focus of which is long in relation to the base of the plate, say ten inches for a half-plate. Pictures taken with long-focus lenses are more truthful than those taken with lenses of shorter focus. With the latter lens it is necessary to get closer to the sitter, and an effect of exaggerated perspective is the result. For bust portraits especially, the employment of long focus lenses is advisable, more so than when taking full or three-quarter length, otherwise the distortion of the shoulders, unless equi-distant from the lens, is very irritating to the eye.

The Use of Single Lenses.—Sharpness, so necessary and desirable in small portraits, is far from being so in

large heads. The use of single lenses in this class of work has of late years considerably increased. Just now the taste appears to run more in the direction of diffused, or so-called pictorial, than of crisp, definition, and the old form of landscape lens, with its aperture opened out to *f*8 or *f*10, according to the degree of diffusion required, makes a very useful instrument. An eminent Dutch expert, after many experiments, says:—"Costly instruments are by no means necessary for large portrait work; the larger the portrait the less need there is for a lens of high quality. In taking small portraits, a high quality lens is a valuable aid, but is not absolutely necessary. For larger pictures there is certainly nothing more suitable than a single lens." Very successful small pictures have, however, been taken with single lenses.

Backgrounds.—According to the style of sitter it is easy to select the most suitable background. If this be selected with taste and judgment the value of the picture is more than doubled. It is really impossible to make a good portrait unless the sitter be relieved by a ground harmonizing with the nature of the photograph and the style adopted. The sitter should be the centre of attraction, the background having no other object than to complete the picture.

Mr. Harold Baker has undoubtedly done more than any other person in the matter of demonstrating the value of various tinted grounds. Thanks to Mr. Baker's courtesy, I am able to reproduce three pictures of his that appeared in the volume of the *Photogram* for 1895. Writing in respect to these experiments Mr. Baker says:—"In comparing

the three pictures a great difference will be noticed, so much so, that it seems quite impossible to believe that the lighting is the same. In Fig. 1 the background is too dark, and makes the lighting of the face flat and chalky, but the hair being lighter is truer, as the dark background relieves it and makes it appear fairer than in the other two illustrations. From this another lesson may be learnt, namely, that for sitters with fair hair (always difficult to render truthfully) it is advisable to use a dark background and make the lighting harmonize with it. In No. 2 the hair is not so good, as it is not relieved so well against the background, but the face is better, showing more modelling. Another curious effect of contrast should be noticed; the background over the left shoulder of the sitter appears darker than over the right shoulder, but the left side receives more light, and



FIG. 1.



FIG. 3.



FIG. 2.

the background is of an even tint, yet the actual fact appears reversed purely from contrast. In No. 3 the face appears to be of a different type, looking much heavier and the lighting gives it a dirty look, but again it is entirely due to the background, in this case, being too light. It seems a paradox that a face against a light background needs a much longer exposure, and probably if the three exposures had been varied, No. 1 having 1 sec., No. 2, 2 secs., and No. 3, 3 secs., the lighting and modelling of face would have been more uniform." The foregoing remarks from one of our most successful men should prove of inestimable value to all amateurs in the choice of backgrounds.

Home-made Backgrounds.—To those who do not want to go to the expense of a background, several good makeshifts are recommended. Those blankets known as "workhouse" (brown) blankets, if without creases, serve very well. Whitney blankets, unless placed very much in the shade, are too light, and if used one is often led to wonder where the face ends and the background begins. Closely knitted shawls, or newspapers, if placed at a point sufficiently out of focus, are also, at a pinch, very handy. Large sheets of brown paper are another inexpensive material, that known as "carpet" paper, which is used for placing beneath carpets, can be obtained in widths varying from 54 to 60 inches.

More serviceable grounds can easily be made at home and for a very small outlay. I have seen a very good one made of a piece of muslin that was coated with whiting, etc., as follows:—Mix whiting with water as you would

make whitewash, to about the consistency of cream, and add a very little venetian red to give the wash a warmer tone, adding a very small quantity of dextrine to give body, and prevent the colour coming off when dry. Two tablespoonfuls to two quarts of wash will be ample. Then mix very thoroughly a little lamp black to a small quantity of dry whiting until the mixture is a dark grey and add this slowly to the wash, stirring well until the desired shade be obtained. By varying the ingredients this wash may be made from white to very dark grey. The wash dries about two shades darker than it appears when wet. The muslin should be tacked up by the edges, stretched fairly tight so that the back will not touch anything while the colour is being applied, otherwise the wash will run through the muslin and the background will dry spotty. Apply the wash carefully with a whitewash brush. When dry the background can be tacked to a pole (a broomstick will do) and can be hung to nails on the wall. When not in use it can be rolled up like a map and put away.

Mr. J. H. Wileman gives in a recent issue of *B.J. Almanac* a novel method of how he made a graduated background by the use of a much-advertised soap. "Take a piece of unbleached calico" he writes, "or some other suitable material, of the size required for a background, and stretch it on a frame or other convenient support by means of tacks. With a sponge wet the material evenly all over; while this is soaking in, take a cake of "Maypole" soap, of a tint to suit purpose (nut brown gave me the required tint), and divide it into two equal parts. Mix one half according to directions supplied with each cake,

but make the solution much more dilute; take the sponge and go carefully over the calico with the solution until it is of a uniform tint, taking care to soften all sharp outlines as you go along. With a little practice this is easily done. Allow this to soak in (but not to dry) and, while it is doing so, take the remaining piece of soap and make with it a strong solution as directed. Dip the sponge in this and proceed to dab the portion of background required darker than the main portion, graduating it off at the edge of the darker shade, and merging it into the lighter; do this carefully and it will be found that a splendid graduated background is the result, equal in usefulness to one costing as many shillings as this does pence. Should it be desired to alter the tint at any time, another tint may be superimposed, full details being given with each cake of soap."

Buying Backgrounds.—Those who desire to buy a commercial (or professional) ground will find a "graduated" pattern of as much general use as any. Good ones upon paper may be bought for about 7s. 6d. For busts especially, this background is best suited. It need not be a large one, but the gradations should start from the bottom or at an angle. Such a ground can be made to produce a large variety of effects and contrasts.

Cheaper "plain and washable" grounds may be bought from 3s. 6d. upwards, according to size. These, also, are very useful, as with a little ingenuity good shadows (gradations) may be thrown upon them by means of side screens, etc.

Backgrounds of Painted Designs.—I do not agree with gaudily-painted designs for amateur use, more

especially for indoor work, as the sitter is often unable to get far enough away from them, the results being that the details (*sic*) of the ground show up as plainly as the face, which should by no means be allowed. With such enforced nearness to the ground, great care should also be taken not to allow a shadow of the sitter to fall upon it.

A most ridiculous specimen of an unsuitable background is shown in Fig. 4, and it was taken by a friend of mine in Paris. The birds appear to be pecking the sitter's head.

If the amateur is determined upon a painted design of some sort or other, he will undoubtedly find an interior with a large plain centre the most useful. Such a space comes in very nicely for vignettes. By the aid of such a ground and a dark curtain at one or both sides, really fine pictures can be secured, A curtain will be found invaluable, as nothing looks more slovenly than the edge of the canvas showing.

A "conservatory" ground comes in very useful when one has many sitters in fancy or evening dress. It is, however, a ground that requires much discretion in its use. An "outdoor" scene is also useful if the worker has not a suitable natural background, which is at all times better than any make-believe.

Accessories to the Background.—Accessories in the shape of palatial columns, vases, curtains, and balconies, raging seas, tempestuous skies, and profile rocks are happily going out of fashion; even if they were not, they are certainly not accessories for home portraiture.

The Head-rest.—The head-rest is now being strongly condemned by many workers, but I for one believe very strongly in it, especially when taking portraits indoors



FIG. 4.—AN UNSUITABLE BACKGROUND.

and the exposure is apt to be rather long. A very good one for home use can be bought for 5s. 6d. It is one that can be clamped to the back of an ordinary chair. For

outdoor work they are not necessary, as exposures can be made very much more quickly than indoors, and the chances of movement are reduced to a minimum. Full-sized head and body rests are very expensive (about two guineas), and if one be used, it should always be placed behind that leg on which the model's weight is resting, because that foot will always be exactly under the head. Amateur portraitists will find this hint of value, saving time in arranging the figure, and preventing the rest from showing in the finished picture.

CHAPTER III.

POSING.

The Art of Figure Posing.—To be a successful portrait photographer requires a quick eye, that is to say, one that can at a moment's glance at the model, see in his own mind's eye the most suitable pose. The art of figure posing is the faculty for reproducing nature in the most picturesque manner, allowing only the most symmetrical view to appear to the point of view as the most beautiful conception of the face and figure. How to obtain the same is almost indescribable, for there is "no system" by which it can be done, because the system which would give good results with one sitter would probably not result favourably with another, and so entirely different tact is required with each subject. I think, when possible, it is better for an amateur to avoid including the whole figure, especially when it is shapeless, and take but the bust.

There are, however, *some* figures that make really good pictures when taken three-quarter or full length. I was much

amused a short time ago by reading in a ladies' column the following advice to its readers :—" An important point to be borne in mind is the advantage of being taken full length. The fact is that, while people know their friends by their full faces, they know them also by their full figures, by the poise of the shoulders, the bend of the back, the general outlines of the body. It is much easier to get a good likeness in the full-length picture than in a bust."

" What is a pretty face, after all ? The maid who dresses your hair, or the girl who dusts the furniture, may have that in a higher degree than yourself, the lady of the house, and if mistress and maid have their pictures taken of their heads alone, the former may appear positively less attractive than her servant.

" How different it is when the two pictures are taken full length. Then the woman of refinement and high station has an opportunity to show her special advantages. She gets the benefit of her gowns, her grace and elegance, and her generally aristocratic appearance.

" On the same principle the woman who has her photograph taken in a *decolleté* gown scores a point over her sister who does not. Homely, indeed, must the woman be whose neck and shoulders do not curve in graceful lines. Then why not show them—these good points ?

" It is better to wear a gown of blue, pink, mauve, or yellow than a dress in plain white. The simpler the folds and the fewer the puffs and ribbon the better. The straight falling Greek costume with its severe lines is an ideal dress."

There is certainly a lot of truth in these remarks, and

although undoubtedly intended for the studio, there is no reason a tyro should not glean something useful from them.

A Useful Material for Drapery.—The mention of Greek gowns reminds me of the beautiful pictures of ancient Greek maidens that can be made at home. Of course all artists know that evening and Greek gowns are manufactured out of the ever-useful cheese cloth, which is lightly twisted and left twisted when not in use, so as to produce the crapy effect. The capabilities of cheese-cloth are never ending for draperies and curtains, in back-ground or fore-ground. It is serviceable, and coming as it does in so many tints, is always grateful to the eye. But again one is reminded of the limitation of colour in photography. It is hard to realise that light blue takes white and a bright yellow will be almost a black mass in the picture.

Copying Poses.—Intending sitters should never hesitate to hear what their friends have to say, be they photographers or not, on the question of the most suitable pose. Too often persons take a particular fancy to some "shop" pose—say that of some "type of English beauty"—and there is no rest until they have been taken like it, neither is there much rest afterwards. If Miss Julia Neilson looks at her best in profile, that surely is no reason why our aunts, or cousins, should do the same. I have known many females who have had strong desires to be taken in the pose of actresses, and nearly always the result has been disappointing. Women, as may be imagined, are greater offenders than men, for our male friends are utterly at sea as to the pose which best suits them, but women always have an idea—generally a mistaken one.

It should be obvious, and yet it does not seem to strike many people, that they really cannot know how they look when they are at their best, or in other words, when they are most themselves.

Expression.—About the worst fault a portrait can have is that it should appear self-conscious. More pictures have been ruined by the time-worn advice, "Look pleasant," than can be estimated. If the sitter does not smile naturally, there is no use trying to force a smile for the duration of the exposure. The main point is to so interest the sitter, and to have such an intelligent sympathy established between operator and subject, that the face of the latter naturally assumes a pleasant expression.

A celebrated German professional once said that he would never consent to take the picture until he knew the person or had at least talked to him, interested him in the birds and flowers that filled his studio, and learned, if possible, some of the characteristics of his subject; the result was that his work was always good, and he had all that he could possibly do in taking the pictures of those who flocked to his studio.

Amateurs really should be able to obtain better expressions - more pleasing and natural—than the professional because he is generally acquainted with the sitters, who feel at home, and whose natural expression is not all dissipated by the importance of the occasion and the strangeness of the surroundings.

Photographs of beautiful children are generally most artistic and satisfactory productions, for beautiful children usually make equally beautiful pictures. One

thing is certain, we get with them a more natural expression than with adults; the latter endeavour to assume the expression they desire to have represented in the picture. Few photographers can divert a sitter's mind from the fact that the photograph is being taken, but with a child things are different. The latter knows nothing of expression, has no pride or wish to look its best; hence we get a natural expression, or one of wonderment, which is very becoming to a child, far more so than a look of vanity.

Whether a picture is photographically or chemically good does not make any material difference to the majority of people; what they look for most is a good pose and an agreeable expression, and if these are not present our sitters are not satisfied.

Methods of Exposing.—There are two methods of exposure. First, by means of a shutter with pneumatic arrangement, and rapid plates. By means of such the operator can stand some distance from the camera and make the exposure quickly when the subject looks "about right." The second method is by the use of slow plates and a fairly long exposure. A prolonged exposure I think allows the sitter to "come down" to an average expression. I find there is more to be gained by so doing than by instantaneous exposures.

The photographer who exposed the Rembrandt frontispiece of this book and I can never agree on the question of long or short exposures. He once made two exposures on myself—one a very short one and the other for the duration of one minute, and it is

almost impossible to tell one from the other, which says much for his clever operating. He warned me at the time that he would make me suffer for advocating long exposures and he did so, for that minute seemed hours, and a very uncomfortable time it was too.

Rapid plates and quick shutter exposures, of course, have their uses; for babies they give exactly the required results, as by their aid a fleeting smile may be successfully caught, which is, perhaps, the only expression a baby has, at least, the only one its fond parents wish to see reproduced. Instantaneous shutters are also valuable when a youngster will persist in wriggling about like an eel all over the field of operations.

Lighting.—Children's pictures are best when well lighted, and in the majority of cases female heads will bear plenty of light; but men's heads are best treated broadly, with bold lights and fairly deep shadows, which suggest strength. Old people of both sexes require a large amount of diffused light to soften the bold marks of time. Hollows in the face are less visible when the light falls into them, but, when the light falls across, one side of the depression is in shadow and the other side well lighted; hence the depression is well emphasised—*e.g.*, a full face with many wrinkles, hollow eye sockets, heavy eyebrows; a side light throws up every wrinkle, and produces generally a hard result. This is very much reduced by a general and diffused light coming from the front; but, in such a case, great care must be taken to avoid flatness. Fat people, babies, etc., who are "all roundness," and show very few lines or hollows, become very flat with a front light, whilst

a soft side light gives a certain amount of relief, and brings out the modelling. Fat faces are seldom satisfactory as a front view, while thin, angular, wrinkled faces are seldom satisfactory in profile. I have seen a strong top light recommended for pictures of old people, but I do not consider it, as a rule, satisfactory. When light comes too strongly from above, the effect produced is peculiar only to its only striking the top of the forehead, cheek bones and nose. When a sitter has white hair, I sometimes stop most of the top light by using a hand screen over the head. Of course, there are exceptions to these, as to all other rules.

Full Length Portraits.—In full length or three-quarter portraits, always where possible allow the sitter to arrange him or herself, as much as is practicable, just making the necessary alterations and improvements that will form a natural picture. Ladies require more careful and reverent treatment than men in the question of dress. Probably the most obvious and general classification of feminine dresses is that which distinguishes them as tall or short, and with or without a train. Long dresses as a rule make the best pictures, both because the length of the drapery gives height and dignity, and because graceful and flowing lines are more easily obtained. As a final hint respecting full-length figures, I caution all against taking what I call unclassable pictures—*i.e.*, neither three-quarter nor full length. A proper three-quarter length should be taken no lower than the knees, and a full length should *include* the *boot soles*. Nothing is more annoying to an artistic eye than a portrait cut off at the ankles What has the poor mortal

to stand on? We should never think of cutting a few inches off the top of a person—*i.e.*, across the nose. Why, then, do it at the bottom? Aren't the feet as pictorial as the head? "Not always," I fancy I hear remarked. Well, perhaps not, but *they can be made so.* If you have sinned in this manner, don't do it again, and you will be surprised how much better your pictures will look.

Apropos the foregoing, I am reminded of a method I read of a short time ago. Years ago a certain photographer is said to have noticed that, when he got a lady sitter with a pair of small feet, she generally liked to place herself so that her fairy-like supports were just visible, while the lady with the large mis-shapen feet kept hers out of sight. From this he inferred that the latter person would much prefer to have small feet also, and, if she had them, she would want to display them; and then he conceived the inspiration of keeping feet on hand and supplying them to customers who needed them. He has a dozen pairs of them—small wooden feet with adorable boots on them—and attached to them is about eight inches of leg, clothed in neat stockings and with a hook about half-way up. The lady with the generous extremities is planted in a chair, with her massive limbs and copious boots hidden as far back as possible without dislocating her knees, and then the artificial legs are carefully hooked on to the inner hem of her dress. Consequently she looks like a person reclining in an easy attitude, with her beautiful feet exposed by accident, and, if she can stand the strain, the resulting photograph is a beautiful thing to look at. Needless to say the above useful hint comes from America.

Bust Portraits.—There is naturally a great variety of poses possible in photographing a single head and shoulders, considerable judgment is therefore necessary on the part of the operator, for portraiture requires, above all the other branches of photography, the constant exercise of the inventive faculty.

For a bust portrait the sitter should be placed as far back in the seat of an ordinary chair as possible, in order to ensure steadiness. A cushion or any other suitable article should be placed between the back of the chair and the shoulder blades. This will throw the chest and shoulders forward, a point that is often neglected in amateur portraiture. If a "three-quarter" face be made, let the body be square with the camera; if a full-face, turn the body slightly to one side, preferably toward the light; if a profile, place the chest, shoulder, or even back, toward the camera. All poses vary, of course, according to the character of the sitter and to the taste and judgment of the operator.

Every face has, artistically speaking, two sides and several views, and to select the best side we must judge of the several features, and employ that side with the majority. It is a well-known fact that one side of the face is always better looking than the other. Usually it is the sitter's left side that possesses the most charms, unless he or she be a left-handed person, in which case their right side is usually the best. Do not, however, take this for granted, but try it, and in nine cases out of ten you will find what I state to be perfectly correct.

Profiles.—It is not every person who looks at his, or her, best, in profile, or what, perhaps, is better known as "side face." It is, however, a curious but well-known fact that the majority of artists who have built up their reputation by drawing female beauty, invariably do it in profile.

An eminent black and white artist once, when writing to me, stated that the character of every woman's face is made by her nose and mouth. "Her eyes," he continued, "are comparatively unimportant. On the curve and length of her chin more than half of the beauty of a woman depends. I hardly ever draw a woman's face without having to re-draw the chin two or three times. If anyone is desirous of producing a really flattering portrait he must mind how he manages the neck. If he does not get the neck exactly the proper length he will make an ugly picture of the prettiest woman that ever breathed. If the neck be too long the face will look haggard and consumptive, while if it be too short, it will give the picture an apoplectic, prize-fighting kind of tone."

The profile is the most severe test that photography can put upon a face. Besides that, the profile is often unsatisfactory for two reasons. In the first place, one's friends cannot sometimes recognise a profile, and in the second place, the expression of the eyes cannot be shown. At the same time there are not a few instances where character is better shown than by the full face. Possibly it is, as I have said before, that when facing the camera they put on a forced expression, but when the face is turned away the necessity is not felt. Rembrandt effects

are connected with profiles, but as lighting plays the most prominent part in their production, the same will be dealt with in the chapter on indoor work.

The Eyes.—Much attention should be paid to the eyes. Very often much care is bestowed upon the management of drapery and the eyes forgotten, the labour then spent in producing a natural picture is lost. Many complain of a "fixed" look about their sitters' portraits. I would suggest to them that they ask their sitter to look at something more distant and rather *large*, instead of a *small*, close object, as is frequently the case. They will then, perhaps, be surprised to find that that "gazing at nothing" look has disappeared, and the pictures show more naturalness and life.

The eyes should be lighted from one source only, so that but one luminous spot appears. Very often a bright reflector casts a second, and gives the portrait a very unnatural appearance. This white spot gives the eyes life and animation; it should be on the upper part of the eyes on the lighted side, and equal in both, but not too strong, but just enough to produce the necessary effect.

Some eyes are very small, or partially closed; these should be made to look upward, if any other pose than that of a full face is being taken, if the latter, the best result is gained by slightly depressing the chin and directing the eyes full into the camera. Prominent or staring eyes should, on the contrary, be lowered and directed at some side object. Care, however, must be taken to have the eyes directed straight in front of the face; the head turned one way and the eyes another, often

gives a very undesirable effect. Never expose a plate while the sitter is casting a sly glance at the camera.

Babies, with their round eyes of wonderment, look even better full-face than in any other position. Deep-set and sunken eyes require a good front light and very little top light; the latter gives them the appearance of miniature caverns.

Pale eyes, such as grey or greyish blue, take nearly white, like those of a marble statue, if care is not taken to shade them; they should, as a rule, be turned from the light. Dark eyes take well, and will bear a good light. If eyes are of unequal size, give prominence, if possible, to the better one, as in the picture the one farthest from the camera appears smaller. A defective eye should, of course, be turned from the camera, and a profile view should, if possible, be made.

I very often mark over the eye-brows (if they are not, to my mind, dark enough) with an actor's grease pencil. It does no harm to the skin and can be easily rubbed off again by means of vaseline and rag.

The Mouth.—In my younger days, before visiting a photographer, I remember being told to say the word "prune" before being taken, for the purpose of getting my mouth into proper shape. Whether sitters are told that at the present day I am unable to say, but it is certain that all the "prunes" in the world will not make a badly-shaped mouth into a good one. Sculptors say that the perfectly proportioned mouth is three-quarters of the length of the nose.

Speaking of the mouth reminds me of a notice I came

across in an old magazine issued some time in the fifties; it is amusing if not instructive. It was headed "Being Photographed." "When a lady," it said, "would compose her mouth to a bland and serene character, she should, before exposure, say 'bosom.' If, on the other hand, she should wish to assume a distinguished and somewhat noble bearing, not suggestive of sweetness, she should say 'brush.' If she wishes her mouth to look small she must say 'flip.' If the mouth is already too small, she must say 'cabbage.' If she wishes to look sorrowful, she must say 'kerchunk.' If resigned, she must forcibly ejaculate 'scat.'"

In practice, I find that large mouths take best in profile, while small mouths are more suitable for full-face pictures. Large open mouths are always a bother, and very little can be done to improve them, because if closed they present a tightened appearance. Well-formed mouths closing naturally in repose are easy to deal with, but these are not always the prettiest or the most expressive. Some lips slightly parted give a faint suggestion of a beautiful set of pearly teeth, and are really lovely. A mouth should never be tightly closed, the lips of which are even slightly parted in repose. Elderly people have sometimes a drooping mouth that gives them a cantankerous look; such a mouth can be considerably improved by a slight smile.

The Ears.—The ears are a bit awkward at times to deal with, and a person who has prominent ears should never be taken so as to show both, *i.e.*, full face. Very few people have well-shaped, nicely-adjusted, closely-fitting ears. If the sitter be a lady, a good job may often be

made of a prominent ear by carefully adjusting a lock of hair over it (not covering it); if this be done carefully the undue size may be completely obliterated. If, however, the subject be a gentleman, place him slightly turned away from the camera, so that one ear is just, and only just, lost to view. Now look at the other, and you will notice that, although it looks prominent to the eye, it will not look so on the finished print. Subdue the light on that side of the face, and you will be surprised how nice the large ear photographs.

In the early days of photography, the photographer, when a sitter's ears were prominent, stuck them back with cobbler's wax while the exposure was being made. I hear that some even now use a flesh-coloured piece of silk to tie them back, but if the model be carefully posed "three-quarter" face, none of these tricks—useful though they be - will be necessary.

The Nose.—The character of the two sides of the face is often altered by the nose not being straight. Indeed, it is stated that not a single nose is straight, but that they all turn a little either to the right or to the left. Such being the case, one side is lengthened, and the other shortened; fortunately, however, such a defect is scarcely ever noticed, and the amateur has no time to make mathematical measurements. The chief trouble about noses is that some are short and others long. The former can be remedied to a certain extent by depressing the head slightly, or by raising the camera and pointing the lens a little downward. Long noses, on the other hand, require the camera to be somewhat lowered, in order that the lens

may point upwards, or the head of the sitter may be raised.

The Hands.—The hands, a very often neglected part, require considerable attention, but, if carefully posed, add materially to the effect of the picture. The main point is to keep them as far away from the lens as possible, because the nearer they are to the camera, the larger and more out of proportion with the rest of the figure will they appear. Where it is impossible to avoid showing the hands, turn the edges to the camera, as in fig. 5. Fig. 6 shows a picture ruined by the largeness of the arms and hands, caused by their being too near the lens. Every inch, bear in mind, forward or back makes a difference in the apparent size of these members, and the same is also true of the rest of the body. Thus a lady in evening dress can change thin and large hands into something much nearer nature's ideal by curving one arm in front of her, with the hand brought back behind the plane of the face.

Most hands can be made to look ornamental or useful, not in the sense you might imagine they were intended on looking at some photos and paintings, in which the persons portrayed look as though they were sustaining their perpendicular by holding on to chairs or tables, or as though they were going to defend themselves with these weapons of nature. The hands may be used to ease the stiffness that might otherwise follow in certain poses, or be made to sustain such a prominent part in the posing as to be one of the fine points in a picture.

When the fingers are held straight out and close together, the effect is stiff, and, if they are kept straight



FIG. 5.—HOW TO POSE THE HANDS. AN INDOOR PORTRAIT.



FIG. 6.—"IS THERE NO PITY SITTING IN THE CLOUDS."—*Shakespeare.*

and spread equally, the result is a sprawled, awkward look. When the hand is open, three fingers posed together look better than two, and some of the fingers should be drawn up, but not all equally. A doubled-up hand is not good—it is like a fist, but a pose in the position of holding a pen or a pencil is generally good, and looks well from many points of view. A very bad arrangement of the hand is when it is held flat and the fingers doubled up to the second joint. The squareness of the form and the impression of the end of the fingers being cut off is not pleasant. Naturalness and unconsciously suspended action seem to be the all-important point, and this will be the most likely to result if employment of some kind is found for them, either in the holding of some object or the actual doing of some action, which, of course, must have a direct and logical connection with the general pose and surroundings, and which must not be of sufficient prominence to lead from the motive itself, but should harmonise with it.

The Hair.—Hair gives more individuality to men than to women, and it should in no way be interfered with. Most males part their hair at the side, usually the left, and that side is generally selected for the photograph, which is rather a fortunate occurrence, as that side is usually the best looking. Red and very black hair, that often "comes out" a black mass, devoid of all detail, should be strongly lighted; a little toilet powder is also useful at times on the head of females, especially if the hair be highly glazed. Low and receding foreheads are often improved by a little fringe, while wavy hair and long, drooping curls are effective

in "three-quarter" face, but give to the full-face sitter an effect of solidity which is not desirable.

General Hints on Posing.—To sum up this rather lengthy chapter on posing, I do not think there can be anything better suited for home portraiture than the bust, especially if we wish to appear as an ordinary "every-day" individual. Full-length pictures are considered by many to be old-fashioned, while the three-quarter length has still many admirers. The latter pose is admirably suited for conventional "at home" portraits, in which the sitter is shown to be really at home, *i.e.*, amidst home surroundings such as the writing desk, bookcase, etc. Full length is perhaps the most suitable pose when the sitter is in a dress or fancy costume, it is best to give such a picture the benefit of the occasion and show off the dress as much as possible. "Costume" busts rarely look well and are not generally advisable, as they always set one wondering what the lower parts were like.

What I would like to see in amateurs' collections is more variety of pose, lighting, and expression. In the "usual thing" there is a dismal want of variety about poses. Amateurs! try something "on your own" and produce something, not eccentric, but unconventional. A certain pose is not necessarily a good one just because it is in a professional's show-case, and yet this is the source from whence many beginners take lessons.

Positions cannot be copied: what suits one person would perhaps be entirely out of place for another, but ideas may be gathered by studying the works of others.

Is the human form jointed like a penny wooden doll so that one is unable to get any other than stock poses? Certainly not. Then try to get out of the rut of every-day "common" photography; in your leisure moments go beyond the "usual thing" and produce something that will make you of little more consequence than "the man over the road."

Applying Powder to the Face of the Sitter.—At a recent exhibition in America, the work exhibited by Strauss and other eminent photographers attracted attention on account of the wonderfully superior modelling of the faces. It is certainly a fact that, as a general thing, among good workmen, the drapery is always beautifully handled; but, in the majority of cases, it is noticed that there is something lacking in the modelling of the faces. Good retouchers can help you out to a wonderful degree, but something else is wanted in "high-class" (so-called) work. The reason the work of the artists named above was so constantly admired was because they had overcome this feature. How did they do it? It is very simple, and any good operator who is alive to the fact that he can improve his work by trying can readily produce the same effects. The modelling referred to was produced by a dark face powder, delicately perfumed, which was applied to the face and hair of the sitter (needless to say, in all cases women) with a puff ball, and in places with the tip of the finger, about the nose, etc. The powder is an article of commerce in America, but I have been unable, up to the present, to obtain it in England. Anxious to try the method, I consulted a

chemist on the matter, and he mixed me a small quantity with which to experiment. The mixture, he afterwards told me, was simply violet powder (fullers' earth will do) tinted to the required shade with red ochre. If used with discretion, it is of infinite value for supplying the face with artificial shadows, especially when the portraits are taken out of doors, but if carelessly used it is a source of great danger, as the face of the sitter is apt to result in a "patchy" effect, or may appear like that of a nigger, which is undesirable. Experience alone is the best teacher.

Very few people object to its use, especially after being told that it is the means of obtaining a more flattering picture.

CHAPTER IV.

OUTDOOR WORK.

Faults of Outdoor Work.—By going out into the open air, and taking portraits under "ordinary" conditions, *i.e.*, without reflectors, shades, etc., it is useless to expect a well modelled result.

Outdoor portraits are, as a general rule, very flat, *i.e.*, devoid of light and shadow, which defect is due to the light not being under proper control, and coming, as it does, from all quarters, thus lighting up every crevice and each side of the face in equal proportions. A valuable friend, in the shape of a brick wall, will sometimes present itself, but even then it is not taken advantage of by the operator; *au contraire*, it is carefully shunned, "because it stops the light"; exactly so, that is just what it should do, for there is (under ordinary circumstances) already too much. A strong light from the front, such as one would get in such a case, destroys those shadows under the projecting features which give character and expression, and consequently makes a flat, weak picture.

Suggestions for Good Work.—The method I adopt, and by which results may be obtained almost equal to studio work

is managed by the careful use of a brick wall. A B in figs. 7 and 8 represent the shady side of a house; the dotted line a brick wall; S the sitter; and C the camera. We will imagine, first of all, the brick wall away altogether. Fig. 7 shows the position of the camera, etc., in what I believe to be the ordinary method of outdoor portraiture. The light, represented by the arrows, comes from both sides, top and front. If, however, a position be taken up as indicated in fig. 8 (the wall being still absent), a very different and a far more satisfactory portrait will result. Instead of a flatly-lighted face, as would result in fig. 7, a large amount of side light is stopped by the house, and the light comes principally from *one* side, top and front only. If the house be a high one, so much the better, as a considerable amount of superfluous top light would be checked. The branches of a tree projecting overhead are still more serviceable; if such a fortunate *contretemps* presents itself, the amateur

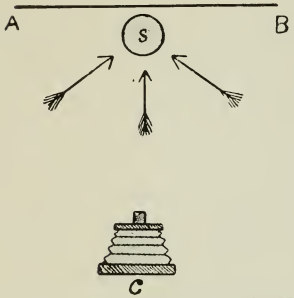


FIG. 7. — UNSATISFACTORY METHOD OF OUT-DOOR PORTRAITURE.
A B—Side of House or Wall.
S—Sitter. C—Camera.

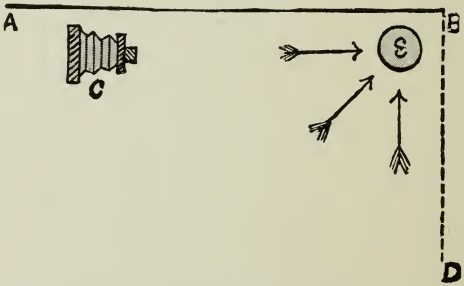


FIG. 8.—A SATISFACTORY METHOD FOR OUT-DOOR PORTRAITURE.
A B—Side of House. B D—Brick Wall.
C—Camera. S—Sitter.

has much indeed to be thankful for, for he has a studio designed by Dame Nature herself, unexcelled by the arts of architects. Fig. 9 represents a garden studio, consisting of only those things that are to be found in the majority of gardens—brick wall and tree.

Should a wall run at right angles to the house in the position indicated by the dotted line it is a fortunate matter,

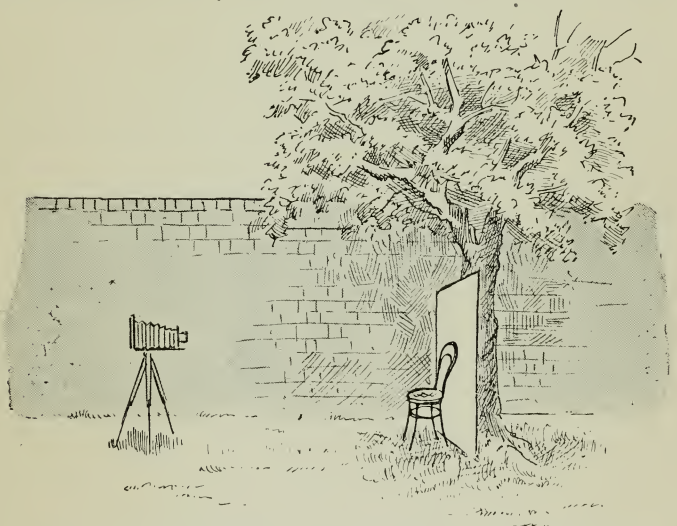


FIG. 9.—A GARDEN STUDIO CONSISTING OF BRICK WALL AND TREES.

and the results obtained by the position pictured in fig. 7 *might* be better; it would depend upon how close the sitter was to the wall and the height thereof. In any case, it would be better to move the sitter and place the camera parallel to the wall—fig. 10 will explain.

If no wall exists in the position shown in fig. 8, a temporary arrangement, such as a large clothes-horse or

screen, should be fixed to hold the background, which, by the way, should be of a "quiet" nature, *i.e.*, devoid of all objects which, by their form and colour, are conspicuous and obtrusive. I prefer a perfectly plain one, of a slate or grey tint. It would be folly to take up that particular



FIG. 10.—USING A BRICK WALL TO IMPROVE THE LIGHTING IN OUT-DOOR PHOTOGRAPHY.

position (fig. 8) without a background, as the light or other objects behind the head would detract the attention, as well as make the features appear very dark.

The principles of lighting given above are similar to



FIG. 11.—A NATURAL BACKGROUND.

those used in the best studios, and, with proper care and a careful and observant worker behind the camera, very excellent results may be obtained.

The foregoing is what may be termed the first principles of lighting, as no special materials in the shape of reflectors are required. Even a background may be dispensed with if the head be posed before some dark object, say a tree trunk, as fig. 11, so as not to appear against the sky, in which case the face would come out much darker than it really should be. Halation might also appear.

If a portrait be taken very much in the open, a little, but very effective shadow may be thrown on any one side of the face by holding up an open umbrella, or other black object, as near as possible to the desired side of the face, but out of the field of view. This hint applies specially to bust work.

Natural Backgrounds.—For full-length figures natural backgrounds are pleasing, and should, if possible, be utilised. For example, a trunk of a tree (as fig. 11) or a gate; but on no account should these be abused. Our aim is to take a portrait of the sitter, *not* the seat, tree, or fence. Our figure must therefore occupy a prominent position, so that the eye rests upon it, and not upon the surroundings. I have seen some portraits wherein a seat or gate takes up quite two-thirds of the picture. In one I remember seeing a child clinging for its dear life to a stone pillar. Why it should be in that ridiculous position I cannot imagine. It was the cleverest imitation of the well-known picture, "Rock of Ages," I ever saw.

Ivy, too, is suitable for three-quarter and full-length

figures, if used with discretion, but not for busts, as it produces a nasty spotty effect.

Apropos ivy backgrounds reminds me of what F.M.S. wrote to *Photography* some few years ago. "The perverseness of mankind," wrote he, "is nowhere seen so well as when the young photographer takes the portrait of his grandfather, for the chances are a hundred to one that if he does not use a holly bush for a background he will use a laurel bush; which of the two is the worst it would be hard to say, so would it be difficult to find in the wide world any thing more unsuitable. If the grandfather is taken in profile it will take some time to find out where the holly bush begins and where the grandfather ends."

Portable Studios.—Tents for home portraiture (sometimes called lawn, or portable studios) are on the market, but are as a rule very expensive, and for all practical purposes equally serviceable (if not so elaborate) structures can often be made at home. A good pattern is shown in fig. 12, and serves equally well for lawn or backyard use. It can be made two or three different ways. First of all, let us suppose it is for an ordinary backyard, and has to be placed against the house or brick wall. A strong wooden frame is made for the top as shown by A.B.G.H. The size thereof depends upon the work to be done, 7 ft. by 5 ft. is a handy size. At the corners G.H. are fastened two hook-like projections, which should fit into two staples placed in the wall at the desired height, say 7 ft. This would then hang like a flap against the wall. At the corners A.B. should be placed two more hooks or rings, which would enable the flap to be raised so as to project at right

angles to the wall, and fixed in that position by means of a piece of cord or chain, attached to a hook or nail driven in the wall above, or say, in the frame of an upper window.

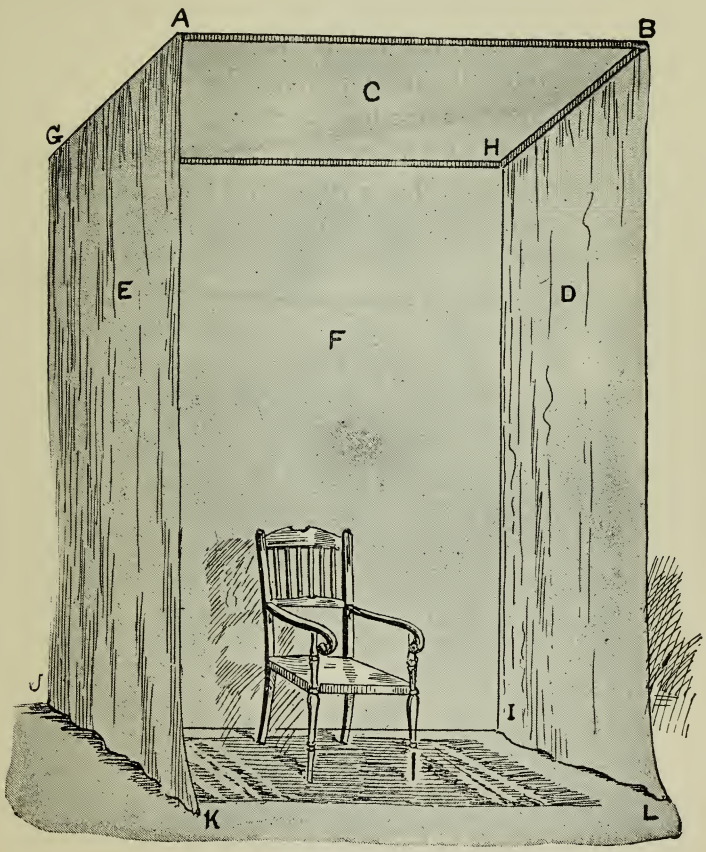


FIG. 12.—A PORTABLE STUDIO FOR LAWN OR BACK-YARD USE.

When securely fixed, a piece of white muslin is nailed on the frame at G.A., thrown over the opening at the top and

allowed to drop at the side as C.D. A thick curtain or other opaque material is hung from G.A. as shown at E. A background is hung against the wall as at F, and the backyard studio is complete. The top muslin can often be dispensed with when the building is of sufficient height to cut off enough top light to prevent the appearance of a high light on the hair, forehead, nose, etc.

If the studio be for a lawn or other open place where no building can be used as a support, it becomes necessary to build a light frame-work to hold the top frame in position. Four upright pieces of wood are driven in the ground in the form of a square as I.J.K.L. the height being (for full length figures) about seven or eight feet from the ground. The frame described in the previous paragraph may be placed on the top, or four fresh pieces may be cut and nailed to the tops of the uprights as A.B.G.H. for the purpose of holding the background, curtain and muslin. If the studio be built under a tree the uprights A.K. and B.L. could be dispensed with, as cord could be attached to the corners of the frame A.B. and tied to the branches above. If the tree be sufficiently strong the remaining supports will not be necessary, as the frame could be attached by rope at its four corners to the branches above.

A portable studio for use in the open air is shown in figs. 13, 14, 15. It was designed by a German photographer who gives the following description of it:—"To surmount the many difficulties of out-door lighting I have designed a portable apparatus, light and practical, constituting in itself a true studio, and being at once screen and reflector. It is simply a screen with three leaves. The centre leaf A.

(fig. 13) serves as a background. It is entirely covered with transparent material, but by means of rings and hooks artificial backgrounds may be used. This back portion has a width of 5 ft. and a height in the centre of $7\frac{1}{2}$ ft., and is shaped like a gable end. The side wings have also a width of 5 ft. and are divided into two parts. The lower part marked B. is 3 ft. 4 in. in height, and is completely covered with a thin blue material. The upper part C. is open, and the space is filled by either ribbed or ground

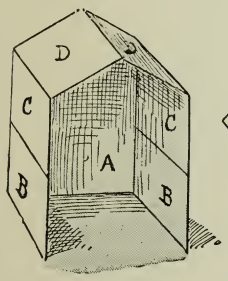


FIG. 13.

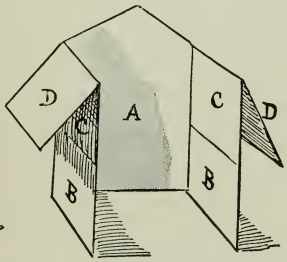


FIG. 14.

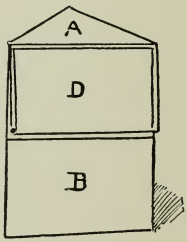


FIG. 15.

DIAGRAMS REPRESENTING CONSTRUCTION OF A PORTABLE STUDIO IN THE OPEN-AIR.

glass, or better for lightness by a white or bluish transparent gauze. By means of inside curtain rods, small curtains, thin or heavy, separated from each other, slip along the length of the screen. The leaves D. are secured to the side wings by hinges ; they are also furnished with glass or gauze, with the addition of rods and curtains like the side wings. The whole folds up like a screen (fig. 15.) and owing to its extreme lightness can easily be carried about. It will be seen that the roof and sides being covered with gauze act as screens, letting a soft diffused light through,

and that by means of the curtains the light may be varied exactly as in a proper studio. The lower part of the side wings acts a reflector. The apparatus once in place, the space inside (5 ft. square) is enough to pose one person, or even two at a pinch. Such an appliance is extremely useful to amateurs and works very well."

The Method of a Good Photographer.—I cannot close this chapter on out-door work without quoting some advice given by that celebrated out-door portraitist, Mr. A. Stieglitz, who, in the current issue of the *American Annual*, gives away his secret of obtaining his characteristic portraits with black backgrounds. Two pictures accompany the article, which have been lauded by the Press as splendid specimens of studio work. "The black background" he writes, "is simply an under-exposed cluster of trees thickly covered with green leaves. Late in the afternoon, about an hour or less before sunset, place the subject to be photographed about 30 to 40 feet in front of the trees which are to serve as a natural background, in such a position that the light strikes the face at a suitable angle; that is, in such a manner as to bring out the characteristic qualities of the head. Many effects of lighting can easily be obtained by moving the figure backward or forward a trifle. Experience in this direction is the best teacher. Focus the eyes and expose the plate without stopping down. In order to obtain the best results your lens must be able to cover the plate at full opening. Using a very rapid ordinary plate (not isochromatic), give only sufficient time to fully expose the whole figure or head, whichever it might be. The negative is

developed with full strength developer, and the development stopped when it has gained sufficient density. It is best to keep it on the thin side. Most portraits are much too dense. After having fixed the plate it will be noticed that the detail in the trees is but faintly suggested. This is the natural cause of their having been badly illuminated during the exposure, and that the ordinary plate is not over sensitive to the green of leaves. When ultimately printing from such a negative, the background will print black while the portrait proper assumes its proper density. No doctoring of negatives thus obtained nor any dodging in printing them is ever necessary, if the original conditions have been carefully attended to." The Egyptian vignette (fig. 30) was produced in this way, dark green leaves being used as a ground, with a division in the camera as per instructions for their production.

CHAPTER V.

INDOOR WORK.

Lighting for Indoor Work.—Indoor portraiture is rightly looked upon by beginners as a difficult subject, but it is nevertheless a branch of work more capable of producing a well-modelled result than any outside arrangements, especially if sufficient care and thought be given to it.

Some rooms, of course, lend themselves more readily for conversion into a temporary studio than others, but if a fairly large room with a moderately lofty window (preferably on the second floor or higher) be available, successful busts and vignettes can be obtained without much difficulty. The ceiling should be high and a projecting bay window is an advantage, and if there are other windows in the room, let them be closed, or cross-lighting would result. A corner window, with the wall side close to it is not the most suitable, unless the wall be a sufficient distance away to prevent any shadow being thrown thereon by the sitter.

The Window.—I fully endorse the old advice of employing, if possible, a window facing north, more especially

when the sun is shining, as even lighting is thereby more easily obtained, and we never need fear the sun streaming in at a moment when it is not wanted. Should, however, a north light not be possible, an east window will answer equally well *after* mid-day, or a west window *before* that time.

The window should be cleared of all blinds and curtains, for in practice we shall very soon find that two inches of top light is worth twelve at the bottom. Even if the curtains be of white lace, it is quite a common occurence to find them tinged with yellow, so much so, that the light that does struggle through them possesses little actinic power, and is of far less value than the bare window. Neither do lace curtains make good backgrounds.

The most suitable and serviceable light is that which falls upon the sitter at an angle of about 45 degrees. Low light for general work is not advisable, so that if the window reaches low down, say to the floor as some do, the same should be blocked up with some opaque material to the height of three or four feet. Brown paper or an opaque curtain will serve. Some workers prefer to only deaden the light by means of muslin or cheese-cloth, more especially when there is none too much light at the operator's command.

Over-Head Light.—To get a suitable and effective overhead lighting, that gives almost the identical effects of a sky-light, procure a spring shade roller at least as long as the width of the window, and the wider the better, preferably one that will accommodate quite a length of blind. Attach to this roller, as you would a window shade, one end of as long and wide a piece of bleached muslin as the

roller will accommodate, and put it up over the window; the higher it is mounted over the window the better. Attach a cord to the outer end to pull the curtain down by. This is drawn down and out over the sitter and fastened at an angle of about 45 degrees. When not in use it can be rolled up and will be scarcely noticeable.

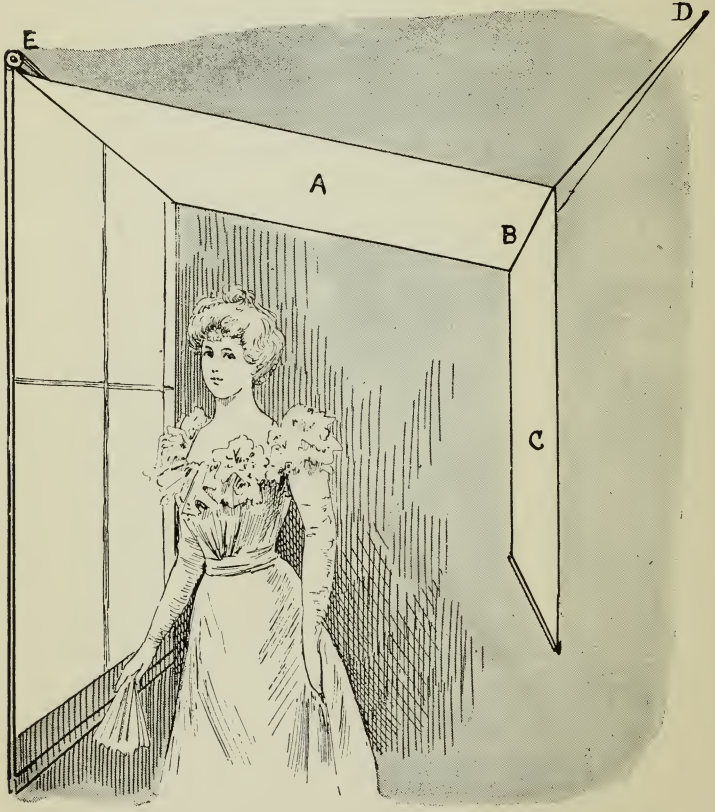


FIG. 16.—USING A WHITE CALICO BLIND TO FORM A TOP LIGHT FOR IN-DOOR WORK.

A still more simple method, fig. 16, is to have an extra long white calico blind (A C) attached to a roller (E). Pull out the blind to its full length and fix up over the sitter by means of a blind-rod (B) and cord (D). The latter can be fixed to a hook in the ceiling or to the gas bracket. These methods are what I may call the first principles of successful indoor lighting.

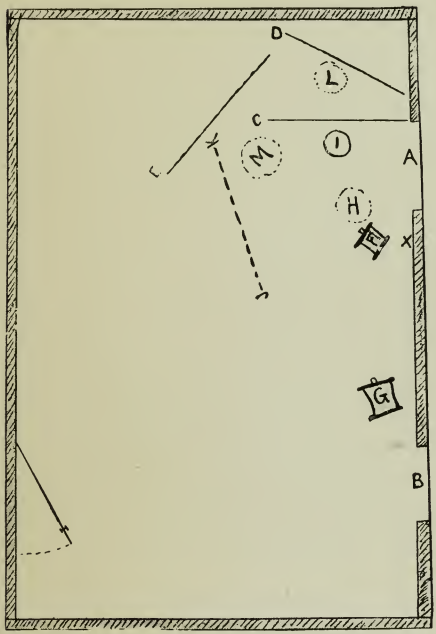


FIG. 17.—DIAGRAM SHOWING POSITION OF REFLECTORS FOR USE IN AN ORDINARY ROOM.

Reflectors.—"Use a piece of white cardboard or a sheet as a reflector," is the advice we often see given, and I believe that most of the failures connected with home portraiture are due to this vague piece of advice, as no information is given as to the manner in which to profit by it; and as there is a right and wrong way of doing everything, there is no exception in the use of reflectors. In all cases of in-door portraiture with an ordinary window it is absolutely necessary to use a reflector, while for out-door work, though not absolutely necessary, it is advisable in some cases.

Some have even asked, "What is the use of a reflector, as I cannot get good results with one?" To answer this question I can only refer the reader to samples of improper and careless lighting; compare these with good ones, and there will be no need to ask the question again.

Let us go very minutely into the theory of reflectors

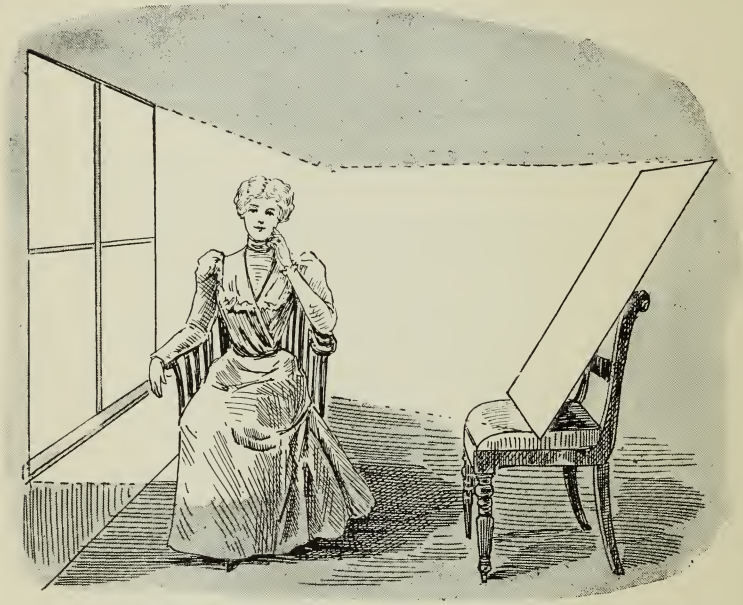


FIG. 18.—A METHOD OF LIGHTING THAT IS MUCH ADVOCATED.

and lighting, and see which is the right way to use them. It is, of course, taken for granted that the reader works in an ordinary room, say, one like the accompanying sketch (fig. 17), which illustrates the room in which I generally work. The letters A B represent windows; G, camera; I, sitter; C, background; E, reflector. In such a confined

space it is impossible to take little more than the bust, unless a very wide angle lens be used, in which case a very small stop would have to be employed, and consequently a long exposure, too long indeed to permit any picture being taken without showing a slight move.

Distortion, too, would probably be caused, for reasons given previously.

Fig. 18 is intended to represent a method of lighting I have seen described by many workers, of course, exag-

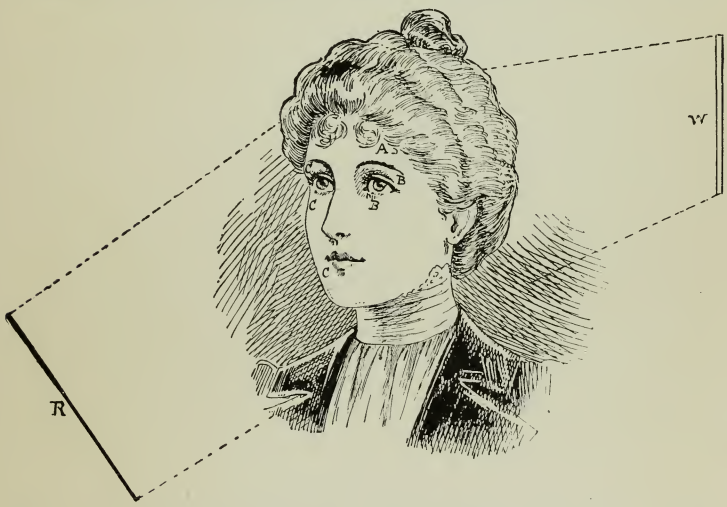


FIG. 19.—DIAGRAM ILLUSTRATING THE EFFECTS OF THE PHOTOGRAPH ON A SITTER'S FACE WHEN A REFLECTOR IS USED.

gerated for the purpose of illustration. Let us imagine that the light comes in strongly at the window and is reflected back by the sheet of white cardboard placed on the chair. Now let us enlarge a face (fig. 19) and carefully examine it under these conditions of lighting. In this figure, however, the window is supposed to be on

the opposite side — *i.e.*, the sitter's left. We shall find that the parts marked A on the left side of the face are the most strongly lighted parts, while those marked B are in shadow. The whole of the right side is in shadow, and here comes in the use of the reflector (marked R), *i.e.*, to reflect the light coming from W back to the dark side of the face. Let us see what happens. The parts that get the strongest light from the reflector are marked C, which, it will be seen, are exactly opposite to those that get the strongest light on the corresponding side, hence it is impossible under such conditions to get anything like a successful likeness. Such faults will not appear so prominently marked on the ground glass or when the sitter is viewed with the naked eye, but they will show up very prominently on the negative, as it is well known that light and shade is greatly exaggerated. A sitter's face, to the beginner's eye, may appear evenly and softly lighted, but on development any little difference will show up with alarming distinctness. The above method (which is in general use) I believe I have proved beyond doubt to be radically wrong. If this then be wrong, which is the right?

To answer this question we must first know what we are lacking and then attempt to fulfil the want. By referring to fig. 19 we can see plainly enough. The high lights on the parts marked A need softening, while the shadows should be brightened up; a simple experiment will show us how this may be effected. Take up a position in front of the sitter's head and note carefully the effect of light and shade; then, without moving your position, place a sheet of cardboard or paper between the window and the

sitter. What do we notice? A complete transformation of the features: instead of harsh or uneven lighting we get the features illuminated by a light of a soft and subdued character. Here then is a key to the door of difficulty.

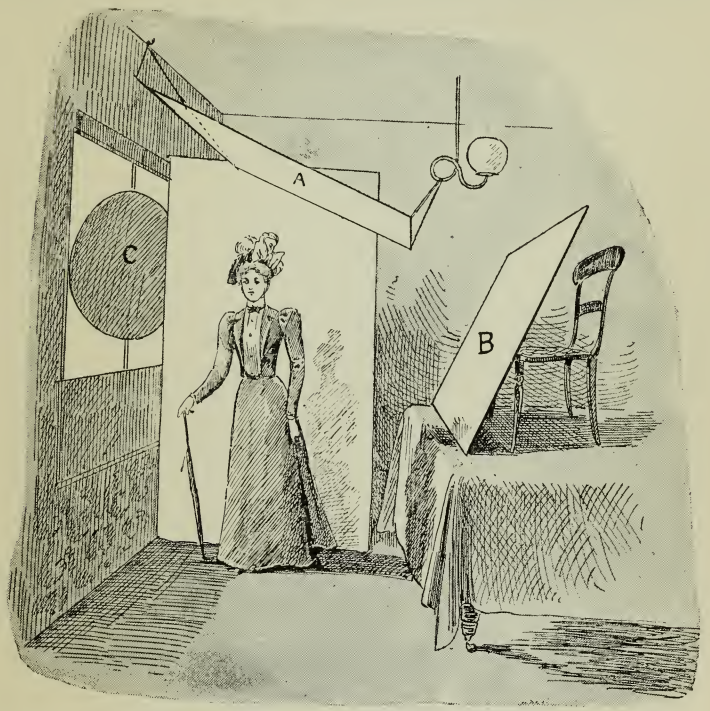


FIG. 20.—METHOD OF USING SCREEN AND REFLECTORS FOR PORTRAITURE IN AN ORDINARY ROOM.

We must not have such a strong light coming from one particular point. As the light in an ordinary room must come from one particular point, *i.e.*, the window, we are naturally beset with some difficulties; professionals, fortunately, have a top light, and many an additional side

light, but amateurs are not so fortunate, hence the advisability of making an artificial one. My favourite arrangement is shown in fig. 20. A shows the artificial top light, which may be fixed in that position by what ingenuity the amateur may adopt; I suspend mine from the ceiling by the two cords shown. B is another sheet of cardboard which may be placed on a chair. The side light from the window is very strong, whereas the shady side has no direct light at all, but only a weak reflected one that is mostly inoperative. This makes it necessary to employ a corrector in the form of a so-called light-screen, besides a reflector.

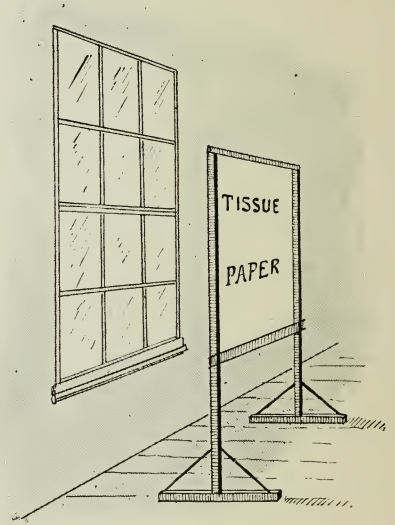


FIG. 21.—A METHOD FOR DIFFUSING THE LIGHT COMING FROM A WINDOW.

This screen is made of a thin white paper, is round, and must be placed between a sitter and the window. The medium must be thick enough to cut off part of the light, but thin enough to let a good deal through. It is made round to soften to the uttermost transition from the direct toned down light. I use an old hoop of my sister's, which I have covered with tissue paper; in the top of the hoop I have screwed a picture ring, and have fastened the

whole arrangement to the blind roller, so that by pulling the blind cord I can adjust the light screen to any desired height. The hoop is shown at C in fig. 20.

The reflectors must be far enough from the window to leave room, not only for the sitter, but also for the screen C, or that shown in fig. 21. These accessories should not, of course, be included in the picture.

An ordinary bed sheet is a good reflector *if it goes high enough*, so as to help a little as a top light. If low down the sheet will cause the same defects as the cardboard in fig. 18. If a sheet be used it should be carefully placed, not too far back but rather at an angle (as J.K. in fig. 17; I being the sitter, D the background, G the camera, A the window, B being a window blocked up) so that the reflected, as well as the direct light, comes well from the front.

A second light spot in the eye is often the result of a reflector being too small and too bright, *e.g.*, a looking-glass; the larger the reflector, the less bright it need be, and therefore the less probability of a second light spot. I do not recommend looking-glasses as reflectors, unless they be for the purpose of lighting up *small* patches of shadow.

A slightly different, though equally effective arrangement to that of the hoop mentioned on page 72 may be used for diffusing the light coming from a window. An opaque board would do at a pinch, but it really stops too much light, therefore, we should employ some translucent material as for instance waxed paper, *papier minéral*, thin muslin or tissue paper. This should be stretched over a frame from three to four feet square, and placed on a level with the sitter's head, and at two or three feet from the window; if it can

be fixed on a moveable stand so much the better. The nearer to the sitter the diffuser is, the darker will that side of the face be. Fig. 21 shows such an arrangement. A reflector can then be placed on the opposite side of the sitter for the purpose of collecting the stray rays and reflecting them back upon the shady side of the sitter. Fairly good results may be obtained without the translucent screen, *i.e.*, by the bare window, if the sitter be placed rather back in the room out of the direct source of light, so that the light enters the compartment a little in front of the face, thus modifying the contrasts; the reflector, too, should be placed at an angle. The position of such arrangement is shown in fig. 17 as follows: — L, sitter; D, background; J. K., reflector; G, camera. Or another way would be to place sitter at M, background at E, and camera at F.

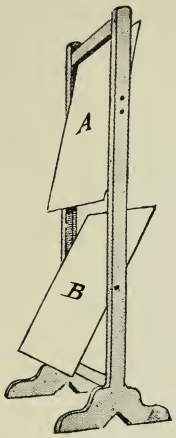


FIG. 22.—A GOOD HOME-MADE REFLECTOR.

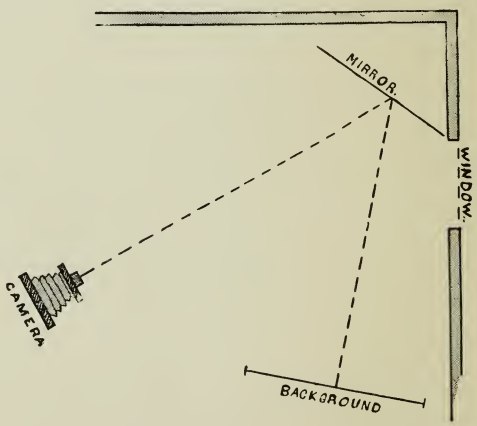


FIG. 23.—PORTRAITURE BY REFLECTION.

A very good substantial reflector, and one that can easily be made at home is shown

in fig. 22. The framework is of wood and measures six feet in height. Two pivoted panels of thin wood painted white, or covered with cardboard or calico, are shown at A.B. and may be swung to any desired angle.

The sitter when in position should be very carefully studied, because, as the eye becomes more and more accustomed to the lighting, you will know whether a better effect can be produced by moving the sitter backward or forward, closer to the window, or away from it.

Sometimes three-quarter or full length pictures are wanted in a room that does not allow of sufficient space between camera and sitter; when such happens, a large mirror or a wide angle lens may be used with success. The latter is the easiest way out of the difficulty, but that known as the reflection method (fig. 23) is capable of producing good results. Seat the sitter in as good light as possible, near a window, and then place a large pier glass at such an angle as to throw the reflection towards the camera, as indicated in the diagram herewith. In this way the distance between sitter and camera is equal to the distance between sitter and mirror, plus that between the mirror and camera. The glass must of course be placed at such an angle that the sitter will not see his, or her face in the glass, but only the reflection of the camera.

Rembrandt Effects.—I have left the question of Rembrandt lighting until last, because it is undoubtedly a most difficult problem for amateurs. It is one, too, in which a lot of misconception exists, and as we learn most from failures I make no apology for giving a sample (fig. 24) of what was commonly supposed by members of a certain

club to be a good attempt at a Rembrandt effect. Amateurs must not expect to get such good results as professionals, because the latter generally have a studio built on purpose for all kinds of lighting, and Rembrandts, especially among the aristocracy, are very popular.

The *best* point for light to come from is in front of the face (not between camera and sitter as in fig. 24), but rather the *other* side of the head, so that a strong line of light is obtained on the forehead, nose, chin, etc., and all the rest seen by the camera in half-tone, *not* blackness. A common error in making these "shadow side" or Rembrandt pictures is, having the shadows entirely flat and black. While the beauty of the Rembrandt style lies in the rendering of the *shadow* side, they should not sink into a mass of blackness, in which there is no beauty or strength.



FIG. 24.—AN UNSUCCESSFUL REMBRANDT.

If we only use one light the contrast will be too great and the picture too hard. A small reflector must therefore be placed on the shady side in order to obtain a secondary

light—soft and broad—so as to reduce the contrast while leaving the outline as clear as before. Black or very dark backgrounds should be used (a red curtain does well) as a light one is of no use. This pose is specially suited to sitters with good profiles and fair hair, because the black ground throws up the same into relief, as shown in fig. 1. With a light background all this, of course, would be lost. More knowledge of this pose and lighting thereof may be gained by studying good specimens than by pages of writing. Bearing the principles in mind – *i.e.*, light to come from a *point* between sitter and background, shady side to be photographed, etc., it will be found that in a room as fig. 17 the following positions will serve: – G, camera; D, very dark background; I, K, small reflector, and H, the sitter looking at a point somewhere about X.

The Necessity for Experience.—Picturesque effect of light, shade and pose should always be aimed at in all branches of portraiture, and a thorough knowledge of the peculiarities of light, etc., should be acquired by the worker, so that his judgment may ever readily arrive at the proper methods of arrangement of the light and the exposure required to produce the effect desired with as little hesitation as possible.

Experience alone will teach the time of exposure, as the factors that govern it are many—*e.g.*, aperture of lens, rapidity of plate, quantity of light, etc., etc.

CHAPTER VI.

PORTRAITS BY ARTIFICIAL LIGHT.

Sources of Light.—During the winter evenings amateurs naturally turn their attention to "night portraiture." Artificial light comes to us as a great boon, more especially when it is cheap in price, which, unfortunately, the most suitable illuminants are not. Electric light, undoubtedly, gives the best results, but expensive plants are necessary, which puts it out of the question for those who have not a long pocket, and many there are of such. Acetylene outfits are much cheaper in comparison, and are capable of producing good work. Ordinary coal-gas is next to useless, while magnesium, both in wire and powder, is the cheapest and the least troublesome for home use.

Electric Light.—Electric light outfits are now sold by many firms, the cost of such being about £20. The light generally is not thrown directly on the sitter, but is screened so that reflected light only is used. The exposure required is very little (if any) more than by daylight, and uniformity of results is certain.

Acetylene Gas. – Acetylene outfits are much cheaper. A very good outfit for home use, consisting of a lamp, stand, adjustable reflector (3 feet in diameter), carrying fourteen 80-candle power burners, and a gas generator, may be bought for £5 15s., or without generator, £3 5s. Acetylene is extremely rich in actinic rays (being identical in colour with daylight), and is entirely under the control of the operator. With a lens working at *f*8, and a "Lightning" plate and fourteen burners, I have obtained fairly good negatives with six seconds' exposure.

House Gas. – Ordinary house gas, with ordinary burners and with incandescent mantles, has been used for photographic purposes; many burners and other fittings are however required.

Magnesium. — The greatest friend to amateurs is magnesium, in the form of wire or powder. They are about the same in price, the difference in them being the quickness of exposure. The powder is "flashed," whereas the wire will burn about as quickly as ordinary sewing thread, and each has its admirers. One of the greatest secrets of successful work with magnesium is to have an abundance of gas, lamp, or candle-light in the room so arranged that it will *help* the exposure, as well as prevent disagreeable reflections and startling the sitter. With such a brilliant light there must be very dark shadows, which plenty of other light will serve to eliminate.

There are many different makes of lamps in the market, as well as numerous flash mixtures, some of which are very dangerous. I have at various times used six

different lamps, and I cannot truthfully say that one is so very much better than the others, for all give about the same results. A cheap one, in my opinion, is almost as good in practical work as an expensive one, and a much cheaper one than that illustrated in fig. 25 it would be hard to find. It is a common clay pipe, round the bowl of which is tied some cotton wool, and a length of india-rubber tubing is fixed on the stem. The cotton wool is saturated with methylated spirit, the requisite quantity of powder is placed in the bowl, the cotton wool lighted, the flames from which will rise about an inch in height, the end of the tubing is placed in the mouth, and a good sharp puff given, with the result that the powder is blown through the flame, and the flash is made. Such is the principle of nearly all lamps. That lamp which ensures every grain being consumed, and gives the largest flash, is the best. Some lamps are on the market that give continuous flashes, but in my hands they very quickly choke up. A little one of French manufacture, and called, I believe, the "pocket fuzee," is about the best. Such lamps are for magnesium powder. We now come to the true "flash light," or explosive mixtures of magnesium and other chemicals, for which there are some scores of formulæ. The following is, perhaps, as good as any:—Magnesium powder, 10 grains; powdered nitrate (dry), 10 to 15 grains. Mix these two together very carefully on

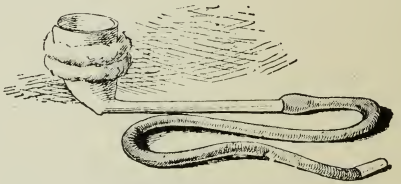


FIG. 25.—HOME-MADE FLASH LAMP.

a piece of paper with a piece of stick. The better it is mixed the quicker the flash. *Always* spread this, and any other flash mixtures, out in a train, never in a heap, or an explosion may be expected, which may do serious damage. The train can be fired by means of a long taper or a wax match placed at the end of a stick.

Of course, the smoke or vapour of previous flashes must be removed from the room by free ventilation, or its presence will be made apparent in fogged negatives.

Magnesium ribbon, or wire, is the safest, as no explosion can take place. Pieces of the required length can be cut or broken off the roll (it is generally sold in rolls), one end held between scissors or pincers, and the other fired by means of a match. Sometimes it takes fully 20 secs. before it will light. For portraiture (if the sitter will keep still) I consider the ribbon the best medium, as it may be waved about and a more general lighting obtained than can be by means of a flash.

The sitter can be focussed by means of a candle held close to the face; the field included can also be ascertained by someone moving the candle from side to side while the operator's head is under the cloth; or if the gas-light be fairly bright in the room, and the focusing glass very fine, the image can be distinctly seen. After focussing, the lens should be capped, the plate inserted, shutter drawn, cap removed, and the flash made, the lens being capped again immediately after exposure. The brief period for which the plate is exposed before the firing of the magnesium will do no harm to the plate.

Position of the Light.—The position of the light is an

important item, and in this authorities differ. I find that the light placed at an angle of 45 degs. gives good results. It should be as near to the head as possible, without shining into the lens; the latter is the cause of many failures. A German expert says "The sitter should be at least a yard from background or wall, otherwise there will be bad shadows thereon. Imagine the sitter's head to be a central point, and from it draw straight lines to the objective and the spot where the magnesium burns; these lines are to include an angle of 30 degs. A reflector should be used to light up the shadow side; a stretched piece of white cloth or paper will do. Imagine another line drawn from the sitter to the opposite side of the source of light, which also makes an angle of 30 degs., with the middle line drawn to the objective; place the reflector in this line, and finally move it so as to be perpendicular. The source of light for a bust should be about 3 or 4 feet from the sitter's head, and about 8 to 12 inches higher. The reflector should be about one yard away. The nearer it is the brighter the shadow side. For groups the powder must be burnt at a greater distance to ensure more equal lighting; a greater quantity is also necessary, as light diminishes with the square of the distance from its source. Consequently, at double the distance four times as much light would be necessary."

Select as light a room as possible—white ceiling, light wallpaper, etc.—and better pictures will result. Be very careful of reflections, and do not fog the plate by carrying a light in front of the uncapped lens, while a plate is being exposed.

CHAPTER VII.

DEVELOPMENT.

The development of portrait negatives is a very important matter, as neglect in this operation will often entirely upset all the arrangements that have, perhaps, been made for the purpose of obtaining a softly-lighted negative. The point to be avoided is too much density, and a developer should be selected that tends, if anything, towards soft results that are full of detail and half-tone, with not too strongly marked high lights. Under-exposure must, therefore, be strictly guarded against. Full exposure is an important item, as a fully exposed negative not only develops more easily and gives softer results, but also requires less retouching than an under-exposed one, as in the latter case all skin markings are intensified.

Many operators depend upon development as a means of securing brilliant negatives ; this, though in itself a good method, cannot be called a legitimate one. Brilliancy should be secured by a correct disposition of the light during sitting. Contrasts produce brilliancy, but they must be delicately managed, or the result will be very

harsh. The happy medium depends chiefly upon the subordination of the half-tones to the high lights. With almost every developer it is possible, if brains be used, to produec good portrait negatives, if, of course, the sitters have been properly lighted and a correct exposure made. At the same time there are, in my humble opinion, certain formulæ far more suited to portrait work than others, and a few of them I give below.

Pryo Developer.—That pyro is the best developer for portrait negatives there seems to be no doubt, a divided opinion, however, seems to exist on the relative virtues of ammonia and soda as the alkali. Personally I prefer ammonia, and in the following form :—

(A). Pyro, 1 oz.; citric acid, 40 grs.; glycerine, 1 oz.; and methylated spirit to make 9 ounces, 1 dram.
(B). Ammonia 880, 1 oz.; water to 10 ozs.
(C). Ammonia bromide, 48 grs.; water to 1 oz.

These are what are known as ten per cent. solutions. To make up the developer ready for use take of

10	drops of	A,	which will contain	1 grain of Pyro
20	,,	B,	,, ,,	2 drops of Ammonia
5	,,	C,	,, ,,	½ grain of Bromide

and make up to one ounce with water. Larger quantities, of course, can be made in proportion to the size of plate it is required to develop.

Pyro-soda developers as recommended by the Cadett and Ilford Companies have proved very beneficial in my

hands, so also has the following, which I believe is not generally known :—

(A). Water, 80 oz.; soda sulphite, 2 ozs.; soda carbonate (granular), 4 ozs.
(B). Water, 6 ozs.; pyro, 1 oz.; alcohol, 1 dram; sulphuric acid, 3 drops.

Mix 3 ozs. of solution A with 3 ozs. of water and let negatives soak therein for five minutes, then add one dram of B and develop to the required strength. This developer gives beautifully soft high lights, and is an exceptionally good one for white draperies, to which it seems to give detail and gradation with remarkable facility and correctness.

Eikonogen Developer.—Eikonogen is strongly recommended by many workers, as it gives beautifully soft negatives without any sign of hardness. I favour the following formula, especially when there is much white drapery in the picture :—

(A). Eikonogen, 1 oz.; soda sulphite, 2 ozs.; water to 20 ozs.
(B). Caustic potash, 1 oz.; water 20 ozs.

Use equal parts of each.

Hydroquinone (sometimes called quinol) and Glycin I find unsuitable for portrait work, while Amidol has a few admirers, of which I am not one of the number.

Metol I consider very good for portrait negatives, and I find the most useful form to be as follows :—

(A).			(B).		
	Water,	8 ozs.		Water,	8 ozs.
	Metol,	35 grs.		Carb. potash,	¾ ,,
	Soda sulphite,	¾ oz.			

The Metol should be dissolved in the water before the sulphite. For negatives use

	Ordinary negs.	Soft negs.	Hard negs.
Solution A	3 ozs.	3 ozs.	1½ ozs.
,, B	1 ,,	½ ,,	1½ ,,
Water	none	none	1 ,,

CHAPTER VIII.

AFTER TREATMENT OF THE NEGATIVE.

It appears, judging from the large number of queries addressed to the photographic press, that the amateur meets with more difficulties in the manipulations of printing and toning than in any other branch of the photographic art. A beginner's notion of printing is very crude; to his mind it means just simply sticking a piece of sensitive paper in contact with a negative until dark enough, and he looks upon the negative when washed and dried as past all further treatment. There is, however, as much scope, if not more, for the display of artistic skill in making a print, as there is in producing a negative.

I would first of all emphasize the fact that it is only possible to get a really good print, one that is perfect in every respect, from a really good negative; but, with care, a passable print may be obtained from a bad negative by what is called "dodging," "faking," or "doctoring."

There seems to be, generally speaking, great fascination in the making of a negative, but less in finishing a print; this

is difficult to understand, as the former is but a step up the ladder, and simply a means to an end.

As stated before, a good negative will give a good print, but if I estimate correctly, not fifty per cent. of amateurs' negatives come from the fixing bath perfect. With such a fact as this before us, it clearly shows that some remedy is needed. The remedies are met with galore, in the form of intensifiers and reducers. Great objection, however, is raised against these methods, on the ground that negatives treated with the former sometimes go spotty and subsequently fade, while with the reducer many find a difficulty in stopping the action at the right moment. These methods may be found in any of the text books. I do not give them here because negatives can be improved without their use, and chemical methods of improvement are scarcely ever to be recommended for portrait work. It is for this reason that I advocate other methods.

Faults in Negatives.—Let us in imagination examine a negative. We shall probably find it devoid of light and shade, or if light and shade be present, it may be terribly exaggerated, such depends, of course, upon the character and method of lighting employed.

Unfortunately for us, photography does not at present render colour, a fact that accounts for many blemishes in the negative. People with fair, yellowy hair and ruddy faces, for instance, have a tendancy to photograph dark, simply because the negative is not sensitive to red or yellow light, hence the defects. Other skins are perhaps covered with freckles, which, being yellow, are reproduced as so many black spots; temporary blotches and pimples

are reproduced in a like manner, whilst wrinkles and facial lines are often so exaggerated as to appear most objectionable. All these matters require attention and correction.

The Advantages of Isochromatic Plates.—Isochromatic or "colour sensitive" plates are claimed to minimise the defects that appear so prominently with plates of the ordinary brand. For dresses that consist of many colours, such as fancy costumes, etc., better renderings of colour may be obtained; the colour of the hair and complexion are also more correctly reproduced. Freckles and other irregularities of the complexion become less prominent, and not so much retouching is necessary. Personally, I hardly ever use these plates, as I am quite satisfied with the ordinary brand and am quite willing to do any little additional "doctoring" that may be necessary. With coloured screens the advantages of Isochromatic plates are still more pronounced; in portraiture, however, their use is scarcely possible as the exposure is prolonged from three to six times. Without colour screens the difference of the results on the two plates is so slight that the use of the Isochromatic brand is not, in my humble opinion, really of any advantage.

Working on the Back of the Negative.—To return to the defective negative. In order to increase the broader effects of light and shade, I prefer to work upon the back of the negative. The simplest and most effective way of working upon the back (glass side) of the negative is by means of tissue paper (or *papier minéral*) and black-lead. These tools may be found in every household. Cut a piece of paper the size of the negative, and stick it lightly by the

edges to the glass side; when dry it may be worked upon with powdered black-lead by means of a stump or finger-tip. Perhaps one side of the face or the background prints too dark; if so, rub the black-lead over the required portion where it is intended to print lighter. Many workers, instead of using lead, prefer blue paint, whilst some use an ordinary blue or black pencil. Any part that prints too quickly and too dark may by these methods be held back.

A simple method of temporary blocking out certain parts of the picture, say the background, is to hold the negative, glass side downwards, over a piece of burning camphor or the fumes of a paraffin lamp until smoked quite black. The surplus may then be wiped away with a soft rag. Great care in handling the negative is necessary, as the blocking is very fragile and easily damaged. If a permanent blocking out is required, black varnish or opaque paint may be used.

If the thin parts are all in one portion of the negative, a better plan, after they have printed to the required depth, is to protect them by a piece of card laid upon the outside of the frame, or with a pocket-handkerchief, which can be roughly adapted to the outline between the dense and thinner portions, allowing the printing to proceed through the uncovered portions for a further period.

If, on the other hand, parts of a negative take a long time to print, or are exceedingly harsh, they may be made to print more quickly by dabbing a little vaseline or oil upon the tissue paper, or by cutting away that part over the required portion. In the latter case, the paper may be stuck wholly upon the glass. The light, of course, penetrates more

rapidly through the parts cut away, thereby helping the denser portions on before the parts covered by the tissue paper have time to go beyond the proper depth. I have also obtained good results by pasting a *thin* piece of white blotting paper (instead of tissue) on the glass side of the negative; it has one advantage, *i.e.*, the blotting can be thinned down to any required depth, or rubbed completely off, by means of a moist finger-tip over dense parts that are required to print more quickly. Another dodge for increasing the intensity of light on the denser portions is by means of a magnifying glass placed in front of the frame. The time required for printing the covered patch is reduced to one-fourth. The rays must not be brought to a focus on the negative, or the heat will crack the glass.

Using Matt Varnish.—Matt varnish may be used with success. The varnish is flowed over the glass side of the negative and worked upon in the same manner as tissue paper. In cases where the negative is very thin, the varnish may be tinted with a pale yellow dye. Parts which are required to print more quickly may be scraped away with a knife. Many find a difficulty in applying varnish to a plate. The negative, *unheated*, is held by the thumb and forefinger of the left hand, at the extreme corner of a small one, or rested upon the tips of the fingers in the centre of the plate if over whole plate, otherwise the corner may snap. Matt varnish is then poured *slowly* in a pool in the centre of the plate. If too little is used, parts will be left uncoated; if too much, it will run over the edge. First, allow it to run to the top right-hand corner, second, the top left, next to almost touch the thumb, and then pour off

gently into the bottle. There is no necessity to rock the negative if the varnish is of proper consistency, and it only leads to getting bits of glass and dirt into the solution. The matt varnish should be kept well corked, or in a stoppered bottle, or it may soon get too thick and unsuitable for use, scraping badly, and giving a gummy surface. Matt varnish dries almost instantly; if it does not, it will simply be necessary to blow upon it, when the desired effect will appear at once. If portions are to be scraped away, no time should be lost, as the varnish soon becomes hard and tenacious.

Using Ground Glass.—The objection to matt varnish is that it is very liable to damage, and I find that ground glass has many advantages. To use it, take a piece of ground glass and place it, ground side up, on the top of the negative, film side up ; work on it, to increase the high-lights, with black-lead or blue pencil—the latter for medium effects. Where it is desired to increase the shadows, use a little weak gum water—this takes away the matt appearance, and makes the glass transparent. After this is done, place the ground glass at the back of the negative and print as usual. A softer effect may be produced by placing the ground glass upon the back of the negative, working upon it and printing as usual. In the latter case, two thicknesses of glass intervene between the paper and ground side of glass ; in the former case, only one.

Other Methods of Increasing Density.—Another very simple way of increasing the density of any portion of a negative, is to mix some of Judson's yellow or orange dye with half an ounce of gum Senegal, and apply thinly with

a camel-hair brush, moistened with saliva. It adds enough density to parts of the negative required without shutting out the detail.

A marked improvement may be made in a print by printing under green glass or green tissue paper. If a negative be denser at one end than the other, through uneven development or uneven coating, the printing frame may be placed at the bottom of a deep, lidless box, one side of the frame resting against the side, the thinner portion being at the bottom.

Spotting.—Transparent spots, or pinholes, are often found in a negative. As these will appear as ugly black marks upon the print, they should be carefully spotted out when the negative is dry. A brush (not a retouching pencil) is generally used for the purpose.

The great secret of spotting is to use your paint as dry as possible, otherwise you will get a ring round the spot, whilst the centre will remain clear. Don't put the brush in your mouth, but mix the paint with water. Spotting should be done with ivory black and always *before* varnishing. Having mixed a little as thick as possible on the pallette, apply the brush, giving a slight circular motion to it whilst drawing it *away* from the paint. This brings the brush to a fine point. The pinhole should then be touched lightly until it disappears. If too much is put on it will be more noticeable than before, as a black spot on a finished print will always be less seen than a white one. If the paint has to be taken off it will be found difficult to touch the spot out successfully the second time. In using the pencil the varying opacity of the touches is obtained by

more or less *pressure*, but with the brush it should be governed by the *quantity* of paint on the brush, always using the paint with as little water as possible. Powdered black-lead and Prussian blue can also be successfully used.

For larger markings, such as air-bells, I prefer a somewhat different method :—

Procure some water-colour paints—ultramarine, gamboge, sepia, and carmine—and a little gum water and a fine sable brush. Rub small patches of each paint separately on an old negative glass, and then mix them together with the gum water, so as to match the colour of the image as nearly as possible, making the paint very thick. Then, with the extreme point of the brush held perpendicularly, stipple the marks all over ; that is, make little dots of colour, not actually touching, but very close, letting one spot dry before putting another down, or else they may run.

Chalkiness is a very common fault, and to remedy this a very suitable plan is to rub the film on the chalky parts with a piece of wash-leather, strained over the finger-tip, and soaked with methylated spirit. This plan will improve chalky or hard negatives, in a manner little short of miraculous. In very bad cases a little fine emery powder added will facilitate the operation very considerably.

Printing from Cracked Negatives.—However careful we are, it is impossible to get along without sometimes cracking a negative. When this happens get a piece of clean glass the same size as the negative, and carefully bind the two together with a lantern slide strip. When printing from the negative, the frame must be continually shifted, and

not allowed to remain in one position for a minute's duration. A meat-jack comes in handy here. A flat board may be suspended in place of the meat, the frame laid thereon, and the whole set going outside. The print will then leave the frame without the slightest trace of the crack showing.

Retouching—General Principles.—The value of retouching as an aid to the production of successful portraits is now universally recognised. It is an extremely difficult operation, and needs much practice to perform successfully. A general idea of the process may certainly be gathered from the various text books, but it is impossible to become anything like expert unless one has a few personal lessons from a good teacher. Lessons may now be had very cheaply, and I recommend all who intend doing much portrait work to get instruction from a good teacher, for by so doing there will be considerable gain in the end. Failing personal lessons I can recommend lessons by post, as I know of many who have had such with great success.

It has been proved that if sitters wash their faces immediately previous to exposure, there would be less work for retouchers, and a better photograph would result. An interesting comparison is that of a large head taken a few moments after sponging the face and another taken a few hours afterwards. Rubbing the face briskly with a dry, rough towel is often recommended for a freckled face. The rubbing brings a colour into the face and the freckles to some extent disappear. A bad case of freckles and the improvement effected by retouching is shown in fig. 26.

The object of retouching cannot be too clearly stated.

It is not to make good negatives of bad ones, as many suppose, it is rather to make good negatives perfect. Over and under-exposed negatives will never give correct results, even though they be worked upon by a clever man. Good retouching only pays when the negative is well lighted, correctly exposed, and carefully developed.

Neither does retouching mean, as some believe, going all over the face indiscriminately. Its purpose really is to fill up all blemishes, such as freckles, etc., to the density of the surrounding parts, so that they may print level, and not as a picture of the moon's surface. The larger the head is taken, the more prominent and formidable of course will be the imperfections.



FIG. 26.
A BAD CASE OF FRECKLES.

If the beginner does not intend going in much for portraiture, then the best and most economical way would be to take or send his negatives to a professional retoucher, who would do them for sixpence upwards, according to size of the the head.

Appliances for Retouching.—To commence retouching at home it is first of all necessary to have a desk for the purpose ; these may be bought very cheaply, or a makeshift one can easily be made at home. I made one out of a chocolate box (fig. 27). A hole (A) was cut in the lid of the required size of the negative, and four small nails

knocked in the same to prevent the negative and piece of ground glass beneath from slipping through. An additional lid to serve as a head-piece (B) was hinged to the original lid (C), and the whole held up to the required height by small strips of wood (D and E) at each side. Black lining was then hung at each side, only shown at one side (F), to prevent the ingress of superfluous light. Desks, of course, may be made as elaborate as one may desire, but the one described above, when a reflector, in the shape of a looking-glass placed at a proper angle to reflect light through the negative, was placed in the bottom of the box, served me well.

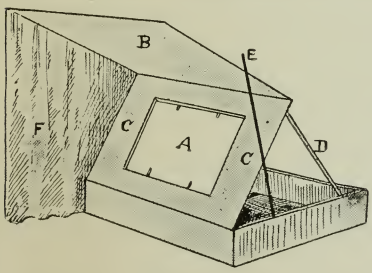


FIG. 27
HOME-MADE RETOUCHING DESK.

Besides the desk, two pencils and a medium are required. Those pencils known as refills are best, as they can be kept pointed better than those in ordinary wood. As to the best grades to employ there is much diversity of opinion; personally I prefer H. or H.B. The leads should be kept at a fine tapering point, at least one inch in length. This is best done by means of a piece of fine emery paper about 5 by 1 inches, pasted on a piece of perfectly flat wood. The pencil should be held horizontally between the thumb and finger. A brisk backward and forward movement along the length of the emery sharpening board, as well as revolving the pencil at the same time, will effect a suitable point.

Applying the Medium.—In its ordinary state the film

of the negative is too greasy to work upon, and a "medium" becomes necessary in order to give the pencil a "bite"; mediums may be obtained in sixpenny or shilling bottles from most dealers, or may be made at home by mixing 30 grains of Dammar in 1 oz. of Turpentine. One drop of the medium should be placed on the part of the film to be retouched, and rubbed briskly round with a piece of rag, or the finger-tip until "tacky," then place aside to dry, the time of which will vary.

Using the Pencil in Retouching.—When the medium is dry, place the negative film upwards in the desk, which should be placed opposite a window, in order to secure plenty of light. With the softest pencil go over the freckles and other blemishes; work the pencil slowly, making the touches very light indeed, and be careful not to put too much lead on at once, but build up the image *gradually;* continue until all blemishes, etc., are lost in the surrounding tone. The peculiar motion of the pencil best suited to the worker comes only by practice. Each worker will "fall in" to his own particular style. There is a large variety of touches in vogue: some workers use dots, as A in fig. 28, some use comma-shaped marks, as B, others use a scribbling touch, as C, whilst many like cross-hatching, as D. It is not wise to limit oneself to any particular stroke, but to use them according to the effect desired. No pencil mark should be carried over beyond the defect itself, or

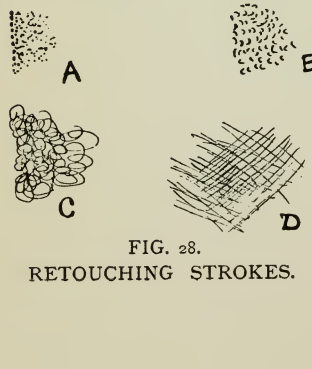


FIG. 28.
RETOUCHING STROKES.

the fault will be maintained. After all freckles and blotches have been worked out, modify the wrinkles somewhat, and correct and harmonize the patches. Look well to the high lights and shadows, and strengthen where necessary, but preserve the shape of the face or the likeness will be lost. Blend the high lights and shadows without losing the characteristic half tone between them. Take a general distant view of the work every now and then, also a few rough prints, you will then be better able to judge how things are going on. Tone down, strengthen and unite all until a pleasing result is the outcome, and do not forget that it takes a large amount of time, patience and *practice*. Retouching can always be removed by means of a drop or two of the medium rubbed on.

There is, I find, a diversity of opinion among retouchers, for the one who gave me lessons always paid most attention to the chin, and with good effect. It will also be noticed that the artist spoken of previously also paid most attention to the chin, whilst others pay the nose greatest attention.

The Use of Knife and Needles.—Now and then we hear much about the "knife and needles" in retouching, such are of great value to professional men who use them with discretion, but to an amateur their use is not recommended. Some, however, may like to try them. Proper retouching knives can be bought for a shilling, or a really fine-bladed pen-knife, with the blade ground to a very fine point will serve. The proper needles are those known as dissecting needles, but ordinary needles mounted in wooden handles and ground to a chisel point will serve. These materials it

will be seen are for *carving* the film, *i.e.*, carving those parts away that are desired to print black, or only *scraping* that they may print darker than originally. A negative upon which the knife is to be used must have a thoroughly dry and hard film. A much better light is required than for ordinary work. Holding the blade almost flat on the film (from point to handle), and the edge turned at a slight angle, scrape so lightly that the first few strokes appear to make no impression. Little by little the density will be found to be reduced. Don't try to work quickly, and never go right through the film. A good, bold sweep should be made at each stroke with the knife. If the film tears or scrapes unevenly, the film is either in an unsuitable condition or the knife is insufficiently sharp.

Varnishing.—Varnishing negatives (whether retouched or not) is not really necessary, but advisable, as varnish protects them from injury both during and after printing, by drops of liquid or damp weather. The varnish may be bought or made at home (see page 135). The negative should be warmed, in order to rid the film of any dampness, the varnish poured on as previously directed, drained and then thoroughly warmed again. It is also an advantage to use two bottles—one from which the varnish is poured, and the other with funnel containing a little cotton wool to receive and filter any excess. Extra care is required in varnishing a retouched negative, as, if taken beyond blood heat, it will be sure to cause the medium to melt, and part of the work to come away with the varnish. The writer is convinced that the touching being disturbed is always due to one or two causes. Either the medium is too thick, or, as is more generally the case, the negative is heated too greatly.

CHAPTER IX.

PRINTING.

In no part of the process of photography is the opportunity for showing individuality more marked than in printing from a negative. All kinds of negatives have perhaps to be dealt with, and a photographer's taste and skill are brought greatly into play in selecting a suitable paper on which to print the picture, so as to present it to the public in its very best aspect.

I do not propose to give in this chapter full details of working all the printing processes extant, but to discuss as far as possible the qualities of the most useful papers for printing, and to add in the following chapter a few formulæ that will not be found in the proverbial "every packet of paper." For some reason or other we frequently find good workers departing from the instructions given us by manufacturers, and using some other formula they consider far better suited to their particular taste. Fortunately there is no law to prevent us from doing so.

Some Suitable Printing Papers.—For "everyday" portraiture I would place a few of the papers in the following

order : — Gelatino-chloride, albumen, collodio-chloride, bromide, carbon, platinum. A great many people refuse to recognise portraits on the rougher papers as photographs at all. They prefer the "real" photograph—*i.e.*, shiny, clear, and of a "photograph" colour. For exhibition work, however, or where one wants to be "noticed," there is nothing like "effect," such as that obtained by the gum bichromate process, or carbon in some ridiculous colour transferred upon sacking, or other rough surfaces. Such, I am glad to say, is confined to a few workers, but there is fear of it spreading. Good portrait work should not require such tricks to show it off, and good portraits it should be our aim to produce.

Vignetting.—The term vignette is understood to mean a gradual softening or blending of a picture into "nothingness," and when properly made this is, perhaps, the most pleasing style of print.

"Whoever introduced the practice of vignetting was no artist, and the 'dodge' was evolved from a misconception of the aims of art and for commercial purposes," says Dr. Emerson in his *Naturalistic Photography*. This is not the opinion of the eminent doctor alone, but that of many others, and undoubtedly has its origin from the fact that certain photographers are "vignette mad," and turn out vignetted prints by the dozen, irrespective of subject, or whether it be suitable or not.

A past master of the art—Mr. H. P. Robinson—says, "Vignetting is not only permissible but commendable when well done, but more to be condemned than any other form of portrait when ill done. A portrait vignette should be

delicate and sketchy, and seems to always demand a light background with a little gradation over the shoulders if possible, which should be soft and varied. After softness and delicacy a very great deal depends upon the background. A dark background is very trying; one graduated from dark overhead down to light is almost impossible to deal with."

Two rules, then, must be observed for the production of good vignettes:—(1) When negatives are to be vignetted dark backgrounds must not be used; the other extreme, white backgrounds, must also be avoided. (2) The vignette must not closely follow the outlines of the figure.

Two shapes are usually adopted, oval and egg-shaped, the latter being used when it is desirable to include the bust. Vignetting may be accomplished in many ways. Years ago a piece of flashed ruby glass, with a clear, white portion in the centre, was much in use, but lately it has fallen somewhat out of the fashion, owing, no doubt, to the fact that it was a "set" or fixed aperture, and could not be adapted to the various forms of vignettes required, such glasses are, however, if the edges of the centre portion are properly softened, suitable for rapid printing. Numerous vignetting appliances (patented and not) are now on the market, each of which has its good points. Nothing, however, in my opinion, is better than home-made vignetters, such as can be made from cardboard, lead foil, zinc, etc.

The further away a vignetting arrangement is from the negative, the more gradual and effective is the blending of the shadows and the white margin. One secret of good vignetting is slow printing. On no account should the

frame be exposed to bright sunlight, or harsh lines will show instead of even gradation, and the sun will leak in more at one side than the other, and so give an uneven print.

The simplest method of vignetting is, undoubtedly, that of laying over the top of the frame a piece of cardboard, in the centre of which is cut an aperture a little smaller than is necessary for the finished result to be, the distance of the card being, perhaps, half an inch from the negative allows for an effective blending of the image into "nothingness."

If a further softening be desired, the edges of the aperture may be serrated, as A (fig. 29), pricked round with

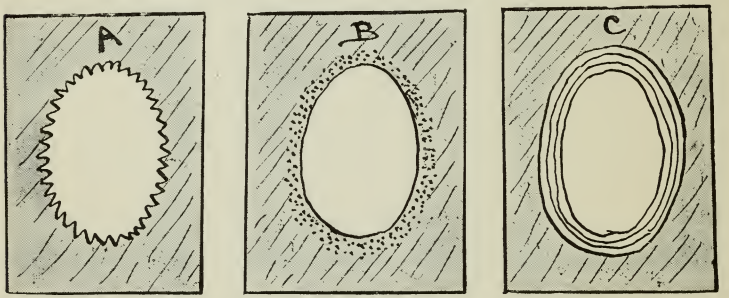


FIG. 29.—FORMS OF VIGNETTING MASKS.

holes, as B, or a few strips of tissue of varying widths may be gummed round the rim, as C. Sheet lead, tin foil, and ordinary tin may be used with success. The two former have the advantage of being pliable, and can, therefore, be bent to almost any shape, especially if the edges be serrated. Tin foil may be bent under the frame, so as to keep the same in its place. Whichever method

be adopted, care should be taken that the vignette completely covers the outside of the frame, so as to prevent the access of any stray light.

Wax paper vignetters are supplied by most dealers; they are much cheaper than glass, the centres, instead of being transparent, are translucent, thereby acting as ground glass and producing softer effects, especially with thin, delicate negatives.

Vignetting glasses and papers may be dispensed with altogether by using what is called a "sand" dodge. Procure a piece of ground glass or opal, large enough to cover the frame, and glue round the edges a wall, about an inch in height, made of wood or cardboard. Having placed it over the frame containing the picture to be vignetted, pour into it some fine sand, just enough to render the bottom opaque; then, with the finger, form the desired shape of opening, and give the top-box arrangement a tap or two to equalise the sand. When it is desired to examine the progress of printing, lift the top off bodily. If it is desired to tint the edges of the print, the sand may be piled upon the centre of the image.

Vignettes on a tinted ground are made by removing the printed vignette from the frame, covering with a sheet of clear glass, protecting the printed portion with a piece of red or black paper, and exposing to diffused light until the desired shade is obtained, but in no case must the tint be darker than the original background.

Masking.—"Masking" in days gone by used to be very popular, but careless workers, I fear, brought the process sadly into disrepute by using masks of unsuitable shape,

e.g., feeding bottles, ivy leaves, etc. Masks were introduced to imitate the old-fashioned, expensive medallions, and in doing this they are, if carefully used, very successful, and good effects may be obtained. Suitable masks may be purchased from any dealer of much better shape and more cleanly cut than an amateur can make them himself.

To produce a white margin, a mask with the desired opening is put between the negative and sensitive paper, and printed in the usual way; the centre, of course, prints as usual, while the margin, being protected by the mask, remains perfectly white. To produce a black margin proceed in the same manner as before; when printed, take it from the frame and carefully cover the printed portion with a disc; cover with a piece of clear glass and print margin to depth required. When a perfectly black margin is required, the simplest method is to lay a disc upon a piece of clear glass in the printing frame, insert clean piece of paper and print margin till black; remove the glass and insert negative in its place, and print the portion required in the space that has been protected by the disc.

Masks and discs are cut on paper so thin (yet very opaque) that their position between the film and sensitive paper will not cause any indistinctness of the image.

Fancy border negatives and Egyptian vignettes are more of curiosities, and will be found described in Chapter XI.

Printing in Backgrounds.—One of the best tricks of printing is the insertion of a suitable background to a figure. The latter may, perhaps, be in a group, or standing amidst unsuitable surroundings. We may, at the same

time, have a negative of a good background, either natural or artificial, that we would prefer to the one already on the negative with the figure.

To print in a background, first carefully block the figure negative out, all but the figure, with opaque or black varnish, working round the delicate parts on the film side, and the straighter lines of drapery, etc., on the glass side. Make a print from this, which will show the figure standing against a white background. With a small, sharp pair of scissors, cut carefully round the figure and lay it in the light to blacken. Select a suitable background negative, place it in a frame, and place the blackened figure on the part you require it to occupy when finished, and print as usual. When printed we have a background with a white place left for the figure. Again place the blocked out figure negative in a frame, and carefully adjust the white part of the background print over the figure, and print as usual. This is a very delicate operation, because, if the two do not exactly coincide, a white line will be left at one side and a black one at the other.

Some advocate painting on the print in the following manner:—The negative containing the figure is blocked out with opaque as before, and a print taken. The figure on the print is then painted over with a non-actinic water-colour—red or gamboge. When the paint is dry, the print is exposed behind a landscape negative, taking care that the latter is not printed too deep. The washing, of course, removes the paint, then the print is toned and fixed as usual.

In time, with a little practice, one may be able to combine the good portions of three or four negatives into one picture. Considerable artistic taste and skill is of course required; knowledge of light, shade, and perspective, too; and, above all, the patience of Job.

For full particulars on printing see "Popular Photographic Printing Processes," by H. Maclean, published by Mr. L. Upcott Gill, at 170, Strand, W.C.; price 2s. 6d., by post 2s. 9d., in which all the best known processes are described at some length.

CHAPTER X.

TONING AND FINISHING.

Let us now look to the question of tone or colour of the finished result. As to what really should be the proper tone of a portrait I am not prepared to say, but there is a tone that all acknowledge as a "photographic" tone, and until the time arrives when that tone is replaced by natural colours, we should, as the advertisements of patent medicines say, "take no other." This recognised tone is obtained chiefly by the use of printing-out papers, and it is these that are, in my opinion, best suited to home portraits. I am well aware of the sharp criticism of my "art" readers, but for that I care not, my aim is to produce a portrait *not* a monstrosity.

Warm Tones.—Almost every photographic printing paper will produce a very large variety of tones, for even with the recognised "cold tone" papers—bromide and platinum, warm tones may be obtained with a little extra trouble. Formulæ and all instructions are issued with the papers so there is no need to reprint them, there are, however, a few others that may be useful.

For example, a correspondent writing to *Photography* a short time ago, asked how to obtain the warm tones so beautifully produced by that well-known fashionable photographer, Lafayette. This was the answer given: —"Red tones can be produced on gelatino-chloride papers, both glossy and matt-surface paper doing equally well, by two very simple methods, especially the matt-surface method, which is the easiest and cheapest. (1) For glossy papers, the papers must be printed a little deeper than desired when finished. Make up the following combined toning bath: A. Sodium hyposulphite 2 ounces, alum 1½ ounces, water 20 ounces. When dissolved, add half an ounce of borax dissolved in two ounces of hot water; let the solution A stand till all sediment is at the bottom, then pour off the clear liquid. B. Lead acetate 8 grains, gold chloride 2 grains, water 1 ounce. Shake the bottle before using. For use take eight parts A and one part B. The prints should not be washed before toning; when toned to the desired shade wash for a few minutes in cold water and place in a fixing bath composed of sodium hyposulphite 2 ounces, water 10 ounces, for ten minutes; then remove, and wash well for about one hour in cold water. (2) For matt-surface papers, the paper should be printed to the same shade as for glossy paper. Make up sodium hyposulphite 2 ounces, water 10 ounces; do not wash prints after printing, but put direct into above bath, take them out when they appear ready, and look at them by transmitted light; if they have a mottled appearance, put back in the bath till it has disappeared; if ready, wash for about one hour in cold water. The depth of printing and length

of immersion in the bath govern the colour of the finished print; the longer in the bath the yellower do the prints become. If some workers will take up this method of producing prints, I am sure they will be delighted at its cheapness, and simplicity, and good results."

Toning Baths.—The method of toning and fixing in one operation is meeting with considerable favour with many workers, while others strongly condemn it. It is certainly much simpler, but the results are not considered permanent. I do not intend to go into the *pros* and *cons* of the subject, as this is already over-done, and my humble opinion would make no difference to the "big guns," whose chemical equations alone are enough to fade a print. The combined baths anyway are certainly not to be recommended to beginners in the art of toning, as their use is liable to be abused; this is not so easy with the single baths, which I recommend all *to begin* with, even if they return to the combined method afterwards.

I do not hesitate to recommend a bath that I have found to give the best results, especially with Solio. The formula is as follows:—

Chloride of Gold	1 grain.
Sulphocyanide Ammonium	10 grains.
Water	12 ounces.

The quantity of water is regulated by the number of prints to be toned and should be sufficient in each case to enable the operator to easily manipulate the prints. Thus 12 ounces as above is a sufficient amount of bath for six half-plate prints and the water must be increased to 24

ounces for from 6 to 12 prints, to 36 ounces for from 12 to 18, and to 48 ounces for from 18 to 48 prints.

Half the above quantity of whole plates can be toned in the bath or double the number of quarter-plates. The area of paper is, roughly speaking, about the same. The prints should, after the preliminary washing, be placed in the bath at the same time and quickly moved about (in order to prevent patches) for about eight to ten minutes. The operations of fixing and washing differ in no way from the usual routine.

One Grain of Gold Chloride will give 6 half-plate prints a cold purple-black tone.

One Grain of Gold Chloride will give 12 half-plate prints a cold purple-brown tone.

One Grain of Gold Chloride will give 16 half-plate prints a warm purple-brown tone.

One Grain of Gold Chloride will give 20 half-plate prints a brown tone.

One Grain of Gold Chloride will give 32 half-plate prints a red-brown tone.

One Grain of Gold Chloride will give 48 half-plate prints a red tone.

Gelatine Prints.—The softness of gelatine prints is often a source of trouble to the worker. They can be hardened by placing, after toning and fixing and thoroughly washing, in the following solution for ten minutes and then washing well again :—Hardening Bath : Powdered alum, 2½ ozs. ; tannic acid, 1½ drs. ; water, 20 ozs. This may be used over and over again.

The one great point in favour of gelatine papers is

that they render detail much better than others. Ghostly negatives will produce on them far better prints than could be obtained on albumen for example. The latter paper reduces contrast and detail, whereas the former increases it.

Before the introduction of gelatine papers, albumen was almost exclusively used by all photographers; since the introduction of the former, however, the consumption of albumen paper has decreased. There is still a firm belief that albumen will shortly regain its old position.

Gelatine prints may be glazed by squeegeeing the prints as soon as they are taken from the last washing water, face downward on to a ferrotype tin, allowing them to dry naturally and then peeling off. A brighter gloss may be secured by previously polishing the tin with the following waxing solution :—Spermaceti wax, 120 grs.; benzine, 1 oz. A very highly-enamelled surface may also be obtained by using a good smooth piece of plate-glass instead of the ferrotype tin. A little of the solution should be applied to the glass (or tin) by means of a tuft of cotton-wool going over the whole surface and then polishing off with a soft cloth. French chalk (or talc) may be used instead of waxing solution, in the same manner. The prints should be taken from the washing water and laid face downwards on the polished surface, or, as many do, float the glazed support under the water and lay on the prints at the same time (under water). A piece of American or rubber cloth should be placed on the prints and then with a roller squeegee, squeegee into close contact in order to expel all bubbles from beneath the print. When the prints are

practically dry a thin layer of starch (or other) mountant is spread upon each, and waterproof backing paper pressed into contact. The whole is then left to dry, when the prints should readily separate from the glass. If they do not fall off, a knife may be inserted under one corner and the prints peeled off, but care must be taken not to attempt this until they are thoroughly dry.

Failures and their Causes.—There are perhaps more failures in printing and toning than one expects, and I make no apology for bringing the most frequent before the reader's notice. Extreme care and cleanliness are absolutely necessary.

Double Outlines are due to carelessness in opening the frame when examining the progress of printing.

White Spots in the Print.—Caused by dust between paper and film. Always dust the negatives.

Blurred or Indistinct Image.—Caused by unequal pressure of the frame back.

Harsh Outline of Vignette.—Caused by the vignette being too close to the negative.

Grey High Lights or Whites are caused by examining print in a strong light.

Uneven Toning may be caused by prints sticking together while in the toning bath, or by adding gold while toning, by using the bath too strong, or by splashes of hypo on the print.

Lack of gold in the bath is the cause of *prints not toning*.

Double and Pink Tones.—These annoying defects are one nail in the coffin of gelatine papers. Some

brands of paper are more liable to them than others. On the other hand some workers never get them, whilst others with the very same paper get a very large amount. One firm of manufacturers once issued the following notice :— Pink half-tones.—These can, as a rule, be traced to the following causes:—Use of paper that has commenced to show signs of deterioration, either through age or careless storing, say, in a very hot place. (2) The accidental employment of a large excess of ammonium sulphocyanide. (3) Toning in a bath deficient in gold through having been allowed to stand so long before use that precipitation of gold has commenced. (4) Too high a temperature of the toning bath. A temperature of 60 deg. is unsafe (50 deg. is better).

Spotty Prints.—The preliminary use of the salt bath in sulphocyanide toning is important under the following circumstances. Occasionally when the untoned prints are put into the first washing water, minute brown spots with tails to them make their appearance. They are due generally to metallic dust, pyro dust, or impurities of a similar nature, such as that coming from an iron pipe with the water, or sulphur from an indiarubber tube, these all cause local reduction of the silver salts in the presence of moisture. Should this trouble occur, it can generally be stopped by immersing the dry untoned prints in a salt bath ($\frac{1}{2}$ oz. of salt to 1 pint of water) and then proceeding with the usual manipulations.

Blue, and sometimes Black Spots, are said to be caused by zinc washing troughs. Spots coming from any kind of dirt in the washing water frequently have

tails; the presence of a tail, therefore, may be taken as a certain indication that the spot has been caused in this way.

YELLOW PATCHES THAT REFUSE TO TONE are places that have been touched before toning, with fingers contaminated with hypo, or even perspiration. Touch paper as little as possible before toning.

LOSS OF TONE IN THE FIXING BATH is caused by the toning solution being too strong; in such a case, gold is deposited on the surface only and does not penetrate into the image, hence the top tone is lost in fixing.

I have dealt rather fully with the above failures, because they seem to appear more frequently on portrait prints—especially vignettes—than upon any others.



FIG. 30.—AN EGYPTIAN VIGNETTE.

CHAPTER XI.

MISCELLANEOUS METHODS AND PROCESSES.

Egyptian Vignettes.—Egyptian, sometimes called Russian or magic, vignettes are a very pretty novelty (fig. 30), and should not be confused with "tinted" vignettes that are described on page 105. Everyone must be familiar with these very effective pictures, in which a well lighted head and shoulders is seen on a black ground. A dead black or a deep red background should be used; pose the sitter as usual, profile preferable, taking care to have the subject well lighted, but as little light as possible on the background. A piece of cloth or cardboard is hung to the top of the bellows *inside* the camera to shield the light from the waist of the sitter. The material must not be hung too close to the plate, or a sharp line will show and so spoil the effect; the nearer the lens the shield is hung the more diffused will the line be. Experience will soon teach the proper distance and size; it varies, of course, with size of camera. A more simple method, and one I prefer, is to cut a hole in a piece of card, as near as possible to the

shape of the bust, and fix the same in the folds of the bellows between the lens and plate; no light can then possibly reach the edges of the plate, the well-lighted bust only showing. No other vignetting arrangements are necessary—simply print from the negative in the usual way. If the edges of the print do not print dark enough, sand can be piled over the image until the edges reach the required depth.

Border Negatives.—These are very pretty, but some of the designs are so glaring that they distract the eye from the portrait. A print is first taken from the border negative, and afterwards placed on the portrait negative, the part—bust or vignette—to be printed in, fitting into the blank space left by the opaque part of the border negative, the rest of the negative being covered up with the vignetting arrangement, duster, or pieces of cardboard. The printing may be performed *vice versa*, if necessary. A proper vignette is first made, the print is then laid upon the border negative and the same printed in, in the usual way. These fancy negatives are generally sold in two sizes, one to take a print of the same size (in which case the border is small as B in fig. 31), and another size to take an original of a smaller size, as A (fig. 31); *e.g.*, if the border negative be of cabinet size, a quarter-plate print can be printed therein, whereas B would take a half-plate. The blocks illustrating the border negatives have been supplied me by Mr. W. Tylar, of Birmingham, who has a remarkably fine collection of about forty.

Statuette Portraits (fig. 32) were very popular a few years ago. There are several ways by which they can be

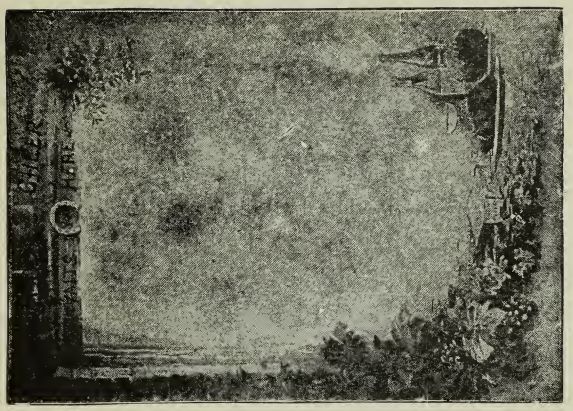


FIG. 31B.



FIG. 31A. BORDER NEGATIVES.

made. If the reader possesses a pedestal large enough, all that is necessary is to place it at a suitable height and the person to be photographed behind it. The breast is uncovered, and some soft white material arranged in suitable folds over the shoulders and in such a way as to appear to belong to the pedestal. A black background is placed behind and a negative made. To give a better effect the hair, face, and all other parts showing should be liberally powdered over with a white powder, say rice flour. The negative produced will have a clear glass background, but the body of the figure will be visible. This is removed by cutting away the film round the pedestal and to the arms on each side, leaving only those parts that are required to produce the picture. In printing a white statuette portrait appears on a black background.

If no suitable pedestal can be obtained the next best way to produce these pictures is to sketch the bust on a large sheet of cardboard with white paint, shading with a little grey to give the rotundity. The figure is placed behind it and a black ground used.

Very good ready-made busts of *papier maché*, or some such material are now on the market, at about eight shillings each. The sitter's head is posed therein and the exposure made, and the after manipulations are as for the first method, or by draping the lower part of the sitter with black cloth, the scraping away of the film is sometimes unnecessary. It depends upon the ingenuity of the operator.

Making Doubles is an amusing pastime that comes under the heading of portraiture. Photographs of a man playing cards or conversing with himself (as shown in



By Rhomaides, Athens.

FIG. 32.—A STATUETTE PORTRAIT



A DOUBLE.



FIG 33.—A DOUBLE.

fig. 33), etc., are, no doubt, familiar to all. There are many ways of producing these curious effects, *i.e.*, by an expensive, elaborate interior arrangement, or by a simple device, such as that advocated by that clever worker, Mr. W. H. Marris, who writes in "The Bazaar." I am well aware that the dodge of producing doubles is not new, but to effect it without any "extras" (excepting a piece of waste card) may be a new method to some. The first procedure is to cut a round piece of card to fit tightly into the hood of the lens, then clip away as much from one side as allows a *little* light to pass in the camera (see A, fig. 34)—the lens must scarcely be seen at all; and the side of the card must be perfectly straight. In fitting this piece of card, look at your ground glass; the shade should nearly reach the middle of it. The card must be black and as far back in the hood of lens as possible. The next thing is to set the furniture and scenery, as if two persons were to be photographed. Then invite the figure to occupy one of the positions and, without the card, focus sharp. This being right, place the card in the lens, as shown at A, and ask the sitter to occupy the position facing that opening. You should then see him only on the ground glass, and nothing of the furniture which will be

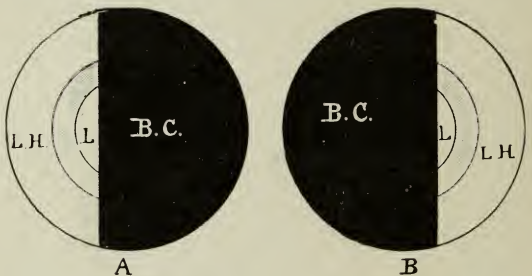
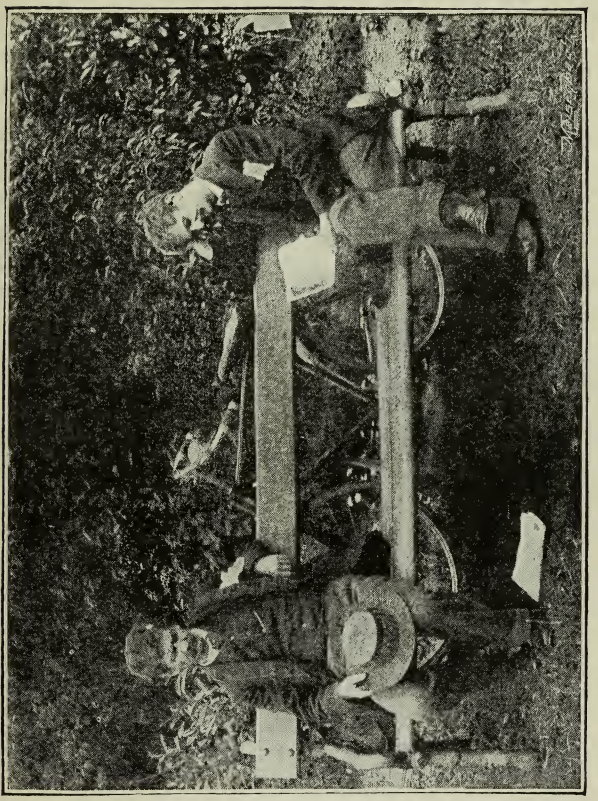


FIG. 34.—ARRANGEMENT FOR TAKING DOUBLES
L H—Lens Hood. L—Lens. B C—Black Card.



A DOUBLE.

taken with the second half. Now ask him to take the second position, and screw the hood of the lens to the left until its opening is brought as shown in B. Looking again at the ground glass, only the figure and the furniture belonging to that half should be seen. If that matter is all right, put on the cap, insert dark slide, and draw the shutter. Expose, cap, but do not close the shutter, simply ask the figure to step into the second position—carefully screw back the hood, which will bring the opening as shown in A ; now expose again for exactly the same length of time as before, and the work is complete. Much longer exposure is necessary than is required for ordinary work without the card. I have found 10 or 12 seconds little enough for rapid plates with full aperture in the open country. It will be obvious why the hood of the lens should be first turned to the left sufficient to bring it as shown in B; it is because it is not possible to meddle with the card between the two exposures. If set right, the turn of the hood back to its usual position (for the second exposure) should make it tight, and bring the card as shown in A.

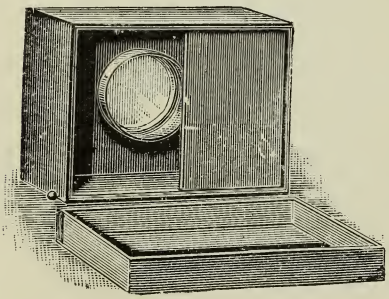


FIG. 35.—TYLAR'S APPLIANCE FOR TAKING DOUBLE.

I give the above in preference to the many other elaborate devices. The above costs nothing, and with a very little practice really good successful "doubles" may be produced. Owing to the slowness of the exposure it

is desirable to get a nice bit of picturesque country scenery as a background, as studio work would be so very slow. Somewhat on the same principle is an apparatus sold by Tylar, of High Street, Aston, Birmingham, and shown in fig. 35. It fastens to the front of the lens, and consists of a box, at the back of which is a piece of cork, which has been cut out for the insertion of the lens. In the front is a sliding shutter, and the lid of the box forms a cap. The sitter is placed in one position, and an exposure made with the sliding portion at one end, the lens is re-capped, and the slide moved to the other side of the box, and a second exposure made.

During the process of making doubles the beginner must not be surprised if he finds an unexposed strip in the centre of the negative. This at once tells him the divisions are too wide, *i.e.*, overlap. If, on the contrary, there is a strip of double exposure down the centre, he will find the card (division) is too narrow, but to what extent experience will alone teach.

If one has a large red or black curtain some extraordinary effects can be made. Use the background that will not photograph, *i.e.*, will come out black; hang a thread down the middle of it, so as to divide it into two equal parts. Pose a sitter on one side of the thread, so that he comes against one half of the background. Focus, expose, and cap the lens. Move the sitter to the other half, and expose as before. The result is one negative, with two representations of the same figure upon it.

Caricatures (fig. 36) are also a very amusing novelty. There are no great difficulties in their manufacture. A

large card is taken, say about 30 by 32 inches, and upon it is painted a design, or one may be obtained commercially for about three shillings and sixpence. (The pictures illustrating this note on "Caricatures" are from cards supplied by Tylar, of Birmingham.) The head is placed over the space where the head is supposed to be (the card being held on the knees), a white sheet is hung behind



FIG. 36.—CARICATURES.

the sitter, and the exposure made. Care must be taken that the head fits the drawing, also that the opening of the card admits sufficient of the neck to give a natural result. A long focus lens should be used, as the different planes of the face and the design on the card will give a more uniform result. The lighting should be fairly even, and pretty much from the front. A top light leads to shadows being made on the card by the head. In development,

good dense and plucky negatives are required. These are not very easy to get, when we consider the face against a white card with a design in black. The usual results are a face thin and weak, with a good clear face, or a good clear face and the card portion, lines, etc., fogged, because of over-exposure. It is best to expose pretty fully, and develop with a developer that tends to give contrast, such as hydroquinone, well restrained with bromide.



FIG. 37.
A SILHOUETTE.

Silhouettes (fig. 37).—Imitations of these relics of photography are a pleasant pastime to make. The object to be aimed at is to get a black profile against a white ground. This may be done by lighting the sitter from the back *only*, so that the figure facing the camera is in deep shadow, with the result that instead of the features appearing distinct, they will be a black mass. Only busts are suitable for the work, as the lower part of the human form lacks individuality. Plan 38 is as follows:—A, window; B, white back-

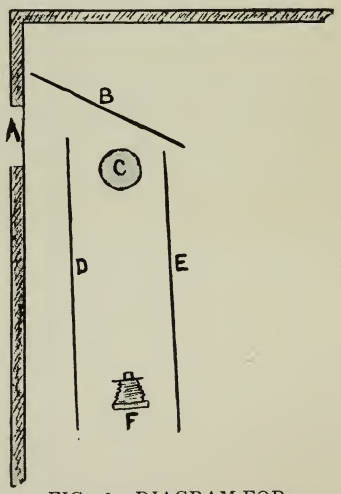


FIG. 38.—DIAGRAM FOR
PRODUCING SILHOUETTES.

ground; C, sitter; D E, dark backgrounds or curtains; and F, the camera.

The background should be placed at an angle to catch the light, as shown in the diagram. The sitter must be between the curtains, etc., out of the way of the light. The profile must be focussed sharp, and a short exposure should be given so as to increase contrast. These pictures may easily be made at night, by using magnesium near the window so as to light up the white background.

There are two other methods by which silhouettes can be made. Suppose we have a room something like that shown in fig. 39, very good pictures can be made by flash-

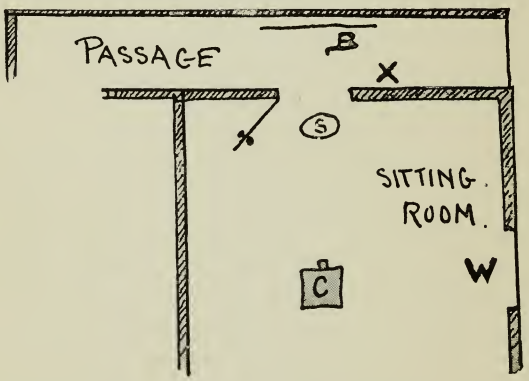


FIG. 39.—DIAGRAM SHOWING THE POSITION FOR MAKING SILHOUETTES IN FLASH LIGHT.

light. C represents the camera placed inside the room, S the sitter placed just inside the door, and B a white sheet hung up in the passage. After focussing, all lights in the sitting room must be lowered or put out, and when all is ready for exposure, a flash, or magnesium ribbon, is burned

in the passage at one side of the door—say at X. The result being that the white background is strongly lighted, while the profile head of the sitter appears as a black mass.

The other method is to cover up a large window-pane, say at W in the plan, with tissue paper, and the others with brown paper or curtains. The sitter is then placed in front of the illuminated pane so that a strong light comes from behind the sitter. The camera is then turned round, focussed, exposed, etc., the result being as before—a strongly lighted ground with a black profile showing upon it. The latter is, of course, a daylight method.

Stereoscopic Portraits.—I find that the most suitable distance between the lenses of a stereo camera to be $2\frac{1}{2}$ inches or $2\frac{5}{8}$ at the most. A greater distance gives, of course, exaggerated relief.

There is one serious drawback to stereoscopic portraiture, *i.e.*, the negative cannot be successfully retouched. If retouching were adopted on a stereo negative, the pencilling, which could not possibly be identical on both halves, would most probably not coalesce, and might possibly appear projected, or recessed, as regards the general level of the face.

Canvas Effects.—A novel method of imitating oil paintings is to first expose the plate in the camera on a piece of stretched canvas, and then use the same plate for taking the portrait in the usual way. The following are details:—A piece of coarse canvas is washed, ironed and stretched quite smooth. Focus very sharp and expose with a small stop. Full exposure should be given. Then use the plate for the portrait just as if it was a fresh one.

Another plan is to use two negatives—one exposed on the canvas in the ordinary way, and another upon the portrait. The canvas negative is then printed from to the required depth, and the same piece of paper used for printing from the portrait negative.

One's Own Portrait.—There are many methods of taking one's own photograph, but the following I consider the simplest, and certainly the cheapest:—Carefully focus something (say a newspaper) placed in the position you intend to occupy. Then attach a piece of black thread to the outside of the lens cap by means of a piece of gummed paper. When this is dry carefully fold part of the focussing cloth on the top of the camera over the lens, and tie a piece of black thread to the corner of the cloth, in such a manner that with a slight pull the cloth will fall over and cover the lens. All is now ready for action. Take up your position, and when ready, gently pull the thread attached to the cap; it will then fall to the ground. When sufficient exposure has been given pull the other thread, and the focussing cloth will fall and cover the lens, which should at once be capped to prevent any ingress of stray light. Busts are best managed by this method, but with special care being paid to the movement of the hands, good three-quarter and full length pictures can be attempted.

Self portraiture by aid of a pneumatic shutter is a much simpler matter, but more expensive, as a ball of extra large size, as well as a long piece of tubing is necessary. Balls suitable for tubing up to 30 feet long cost 2s., over that length 4s., whilst tubing costs 4d. per foot. The ball should be held in such a position that neither ball nor tubing

will show in the negative. Some operators work the ball by the foot.

Portraits without a Lens.—Good outdoor portraits may be obtained by the use of a pinhole instead of a lens. The results are not absolutely sharp, but the drawing and modelling are good, and the general effect of the image presents a harmony like that of an oil painting. A condition essential to success is to work only on a bright sunshiny day, when an exposure of from 30 secs. to 60 secs. is required with a very rapid plate. The exposure is of course rather long, but some sitters can manage to keep fairly still for that length of time.

The pinhole should be as small as possible, for if the opening be too large the image will be unpleasantly diffused. It must, however, be borne in mind that the smaller the hole the longer will be the exposure, exactly in the same manner as if ordinary stops were used.

It will be found that a fine needle, made red-hot, and just passed through a piece of thin, hard cardboard, will pierce a hole of suitable size, any little burr being removed by burning it off with the side of the hot needle, the point of which being again gently inserted in the opening will make it clear and round. Another method is to make a cardboard slide to fit in front of the camera in place of the lens, cut out a square inch in the middle of the card and place over the hole a piece of tinfoil. Make the point of a sewing needle red-hot, and push it through the centre of the tinfoil; this should leave a perfectly round hole with clear edges, and from $\frac{1}{30}$ to $\frac{1}{50}$ of an inch in diameter.

The image is always in focus, and the distance from the pinhole to the plate governs the angle of view included, also the exposure. With a little practice and a lot of patience, good results may, however, be secured. It is not easy to over-expose sufficiently to spoil the negative, as the very weak light does not readily pass through the film.

Postage Stamp and Minette Portraits are very useful and pretty novelties. Menu cards, ball programmes, and all kinds of fancy stationery will furnish a large variety of outlines that may be copied and combined with portraits to make pretty birthday, 'Xmas, and new year greetings. Special cameras for making these stamps in large quantities are now on the market, but the high price at which they are sold prohibits their use by amateurs, whose desire it is to produce but a few prints. The price for such machines ranges from £5 (takes four pictures on a 5 by 4 plate) to £10 10s. (25 on a 7 by 5 plate). The foregoing machines are for *copying* the stamps from a finished print. Cameras for taking stamp pictures *direct* from life, range in price from £2 10s. (12 on a quarter plate) to £8 8s. (36 on a 7 by 5 plate).

A perforator for perforating the prints, as stamps, costs about £7, but this is not really necessary as small quantities can easily be done at home by means of an ordinary sewing machine, or failing this, any large printer who has a machine will do them very cheaply.

By the following system of copying, very good stamp pictures may be made with any ordinary camera. A good clear portrait (bust preferred) is first of all required, around

which is sketched on white, or coloured card, a suitable border of any pattern the worker may desire. Litho borders were once on the market, but are not now, I believe, obtainable. Fix the portrait and border on a perfectly dead black background and focus to the size you require. Note also, and mark with pins the limits within which you can shift the picture so as to remain on the plate. Then expose in one position (say the top left corner), cap, shift the picture to the next vacant space and expose again cap, shift again, and so on until the whole field of view has been covered by the portrait. The black background will not affect the plate in any way, and on development many small images will be found on the negative, which is printed from in the usual way.

The number of stamps obtainable on one negative increases with the distance of the camera from the copy. If any difficulty is found in focussing the small portrait, a newspaper can be temporarily fixed in place of the copy, and the type thereof focussed.

Opalines.—Everyone who has visited holiday resorts is undoubtedly very familiar with this popular style of picture. The cheaper patterns are generally mounted upon bevelled glass, whilst the more expensive have gold edges and are mounted upon plush pads. Home portraits mounted in this style make very pretty novelties and are very suitable for presentation. The bevelled glasses and pads may be obtained from all large dealers, the glasses costing from 1s. per dozen $\frac{1}{4}$-plate size; the plush blocks from about 3s. per dozen.

Prints should be finished as usual. The mounting thereof, however, depends upon the character of the paper. If a gelatine print (Solio, P.O.P., etc.), soak in clean cool water, put the glass in as well and bring them into contact while under water. Bring them out and press well into contact with a roller squeegee and set aside to dry. Prints mounted like this often need no further treatment, as the print being of gelatine sticks to the glass very well. As an additional security I sometimes, when the print on the glass is about half dry, slightly raise the edges of the print and put round a very narrow edge of mountant, press into contact again and allow to dry; this prevents the edges pulling up.

Other prints not of a gelatinous nature (plain silver, etc.), require more preparation. Dissolve 1 oz. of gelatine (Nelson's No. 2) in 10 ozs. of water, and pour into a porcelain dish, keeping it warm by placing in another, slightly larger, containing hot water. Place the print in the gelatine solution and the glass in some hot water. Place the print face down upon the glass (when removed from the water), taking care to avoid air bubbles, smooth into contact with the finger, and press down well with a squeegee. A piece of white paper may be pasted over the back with starch paste when the print is dry. It is then ready to be fixed with glue to the plush block.

CHAPTER XII.

MISCELLANEOUS FORMULÆ.

Retouching Mediums.

(1) Dammar, 30 grains; turpentine, 1 oz.

(2) Dammar, 10 grains; Canada balsam, 5 grains; turpentine 1 oz.

(3) Pale resin, 1 oz.; oil of turpentine, 1 oz.; oil of lavender 2 ozs.

Negative Varnishes.

(1) White hard varnish, 15 ozs.; methylated alcohol, 20 to 30, ozs. This will be found a good and cheap varnish if durability is not required, as it is easily cleaned off.

(2) Best orange shellac, $2\frac{1}{2}$ ozs.; oil of lavender or turpentine, $\frac{1}{4}$ oz.; methylated alcohol, 1 pint.

Keep in a warm place until dissolved; then add a teaspoonful of whiting or powdered chalk; set aside to clear and then decant. This is specially recommended.

Matt Varnish.

Sandarac, 90 grains; mastic, 20 grains; ether, 2 ozs. Dissolve the resins in the ether and then add benzole, $\frac{1}{2}$ to $1\frac{1}{2}$ ozs. The proportion of the benzole added determines the nature of the matt obtained.

To Remove Negative Varnish.

When it is necessary to clean off varnish from a negative, a mixture of ammonia, 1 oz., with methylated spirit, 9 ozs. should be made, and the negative soaked therein for about

five minutes. The film should then be gently rubbed with a piece of cotton-wool. If this does not remove the varnish, the soaking and rubbing may be repeated. This process will remove all varnishes except those of the celluloid variety, for which amyl acetate should be used.

A Magnesium Flash.

About ten grains of pyroxyline is placed on an iron plate, and over it is sprinkled 20 grains of magnesium. This mixture gives a very brilliant flash when fired, say with a long taper or a match at the end of a stick.

Black Paint.

A dead black for insides of cameras, lenses, etc., is made by mixing lamp black with turpentine to the consistency of ordinary paint, and adding to each ounce of the paint about one dram of gold size.

Sizes of Mounts.

The following table will be found very useful:—

C.D.V.	Midget	$1\frac{5}{16}$	by $2\frac{1}{1}$
Victoria	,, ...	$1\frac{1}{2}$	,, $2\frac{3}{8}$
Cabinet	,, ...	$1\frac{3}{4}$	,, $2\frac{11}{16}$
Promenade	,, ...	$1\frac{3}{8}$	,, $3\frac{1}{1}$
Boudoir	,, ...	$1\frac{15}{16}$	,, $3\frac{3}{8}$
C.D.V		$2\frac{1}{2}$	,, $4\frac{1}{8}$
Salon		$2\frac{5}{8}$	,, $4\frac{7}{8}$
Cabinet		$4\frac{1}{1}$	,, $6\frac{5}{8}$
Promenade		$3\frac{7}{8}$	,, $8\frac{1}{1}$
Panel		$7\frac{1}{2}$	,, 13
Boudoir		$5\frac{1}{2}$	,, $8\frac{1}{2}$
Imperial		$6\frac{7}{8}$	,, 10
Malvern		$3\frac{1}{1}$	,, $6\frac{1}{2}$
Royal		$5\frac{1}{8}$	,, $10\frac{5}{8}$
Large Panel		$10\frac{1}{2}$	,, 17
Grand		$13\frac{3}{4}$	,, 23

Table of Distances.—The following table gives the distance in inches that a sitter 6ft. in height should stand from a given lens in order to produce an image of a given size:—

Focus of Lens.	Height of Figure in inches.								
	3	4	5	6	8	10	12	16	20
3	75	57							
4	100	76	61	52					
5	125	95	77	65	50				
6	150	114	92	78	60	49			
8	200	152	123	104	80	65	56		
10	250	190	154	130	100	82	70	55	
12	300	228	184	156	120	98	84	66	56
16	400	304	246	208	160	131	112	88	72
20	500	380	308	260	200	164	140	110	90
24	600	456	369	312	240	196	168	132	110

EXAMPLE. Suppose lens used be 6in. focus, and a full length figure of 4 inches be required. Look in left-hand column for lens focus and in top line for size of image. In the intersection of these columns we find 114 inches = 9½ft. the person must stand from the lens.

FINIS.

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